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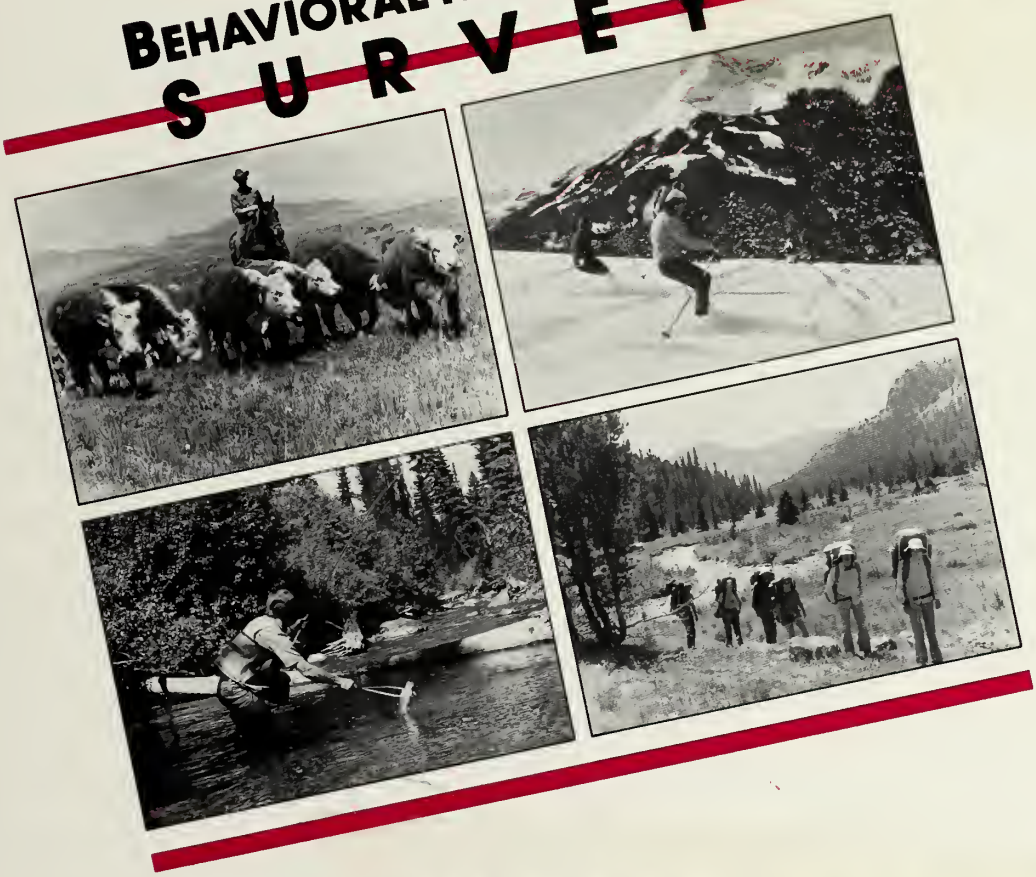

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Statewide Analysis of Selected Health Risk Factors

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PREFACE

Americans have become increasingly concerned about rates of disease and death, related to several primary risk behaviors. This report about nine different primary risk behaviors is part of a larger national effort to improve understanding of how these behaviors impact the health and welfare of the American people. An analysis of risk behaviors is based on the ultimate premise that many diseases and untimely deaths can be prevented and that the identification of persons at risk can serve as a first step in a process to reduce particular risk behaviors and their unwanted and often unintended effects.

In the early part of this decade the Center for Health Promotion and Education, a division of the Centers for Disease Control, established a program to assist state health departments in gathering information about primary risk behaviors. The State of Montana, through the Chronic Disease and Health Promotion Program in the Department of Health and Environmental Sciences, has participated in an ongoing survey of adult Montanans' primary risk behaviors since the early 1980s. This report focuses on risk behaviors with respect to seatbelt use, sedentary lifestyle, tobacco use, alcohol consumption, hypertension (high blood pressure), obesity, cholesterol, mammograms, and routine medical checkups. Five years of data (1984-1988) are analyzed for the first six behaviors listed above, and two years of data are analyzed with respect to cholesterol, mammograms, and routine medical checkups.

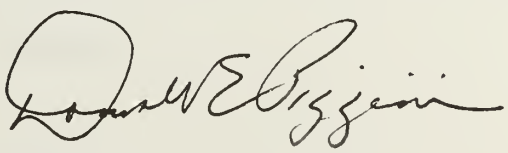
FOREWORD

It is believed that many of Montana's citizens have chosen to make the Big Sky Country their home through its cycles of "boom" and "bust" because the open spaces and spectacular geography provide a unique lifestyle which includes a rich variety of superb opportunities for outdoor recreationists. Indeed, data from the Behavioral Risk Survey suggest that Montanans are more physically active and less overweight than are their counterparts in other states. The profusion of recreation as well as the physical nature of the occupations by which many Montanans earn their livings may contribute to this more physically fit profile which the survey portrays.

Some threats to the health of Montanans have diminished during these five years. In the years encompassed by this report, cigarette smoking has lessened substantially, and the reduction of highway traffic fatalities has demonstrated that Montanans are law-abiding citizens who buckle up as required. Yet in spite of changing lifestyles which have improved the health prospects of some Montanans, other habits are deeply ingrained, and not all Montanans are able or willing to take steps that will reduce hazards to good health.

For some Montanans this may be a matter of restricted access, perhaps economic as well as geographic. Individuals may be unable to obtain services, or information may be limited as we suspect of women over age 50 who have not had mammograms. For others, such as senior citizens who are physically inactive, or young adult males who display a greater tendency to drive after drinking alcohol, attitudes about the stage of life or social role may foster practices which are not beneficial.

Health professionals must seek and implement strategies which will motivate individuals to incorporate these important, healthful behaviors into their lives. Information and education must address cultural norms and age differences. Preventive health screenings and services must extend to those who are remote from population centers. Reaching those who are out of the mainstream, whether because of difficulties in their personal lives, such as unemployment, personal relationships, or lower educational level, presents an ongoing challenge to health professionals. While personal choices and individual responsibility are ultimately the path through which good health is achieved, health professionals in private and public organizations must form partnerships to involve more Montanans in this pursuit.



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ACKNOWLEDGEMENTS

We wish to express our thanks to Paul Miller and Doug Buskirk of the Population Research Center at the University of Montana, who analyzed these data for us. Both Dr. Miller and Mr. Buskirk were generous with their time and patient in helping to develop a format that conveys the most significant information from the voluminous data that were generated in the five years of this study.

Special credit is due Gloria J. Colclough, at the Centers for Disease Control, Atlanta, Georgia, for her help in providing Montana's data in a form that was compatible with the Population Research Center's computer system. Always quick to respond to calls for clarification and assistance, Ms. Colclough was a valued colleague on this project.

We also want to express our sincere thanks to Blue Cross/Blue Shield of Montana whose provided the layout and design for the report cover. Blue Cross also generously supported publication of this report by donating the report covers. The coordination of this process was accomplished smoothly through the efforts of Trinda Meyers, of Blue Cross/Blue Shield, and we are appreciate her cheerful assistance. Photographs featuring profiles of active Montanans were contributed through the courtesy of Travel Montana.

Montana's Behavioral Risk Surveillance Project has been fortunate to have the same interviewers throughout the life of the project. The dedication and years of experience brought to this task by Lois Ennis, Kathy Moots, and Bonnie Naeth has contributed much to the efficiency and high response rate of the survey. Linda Priest, who trains and supervises the interviewing staff and coordinates closely with the Centers for Disease Control ensures the continuity of the survey from month to month and year to year. We have been grateful for their enthusiasm and commitment and are pleased to have them as colleagues in this project.

We also wish to express our thanks to the many Montanans who participated in the survey, contributed their time, and shared with us this important information about their health practices and lifestyles. We hope that the descriptions and analyses of the trends and patterns described in this report will ultimately result in healthier and safer lives for all Montanans.

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INTRODUCTION

Each month since 1983, 99 Montanans have been surveyed by telephone to determine the prevalence of behaviors which contribute to risk of premature death and preventable disease. The survey which is conducted through the Preventive Health Services Bureau in the Montana Department of Health and Environmental Sciences is funded by the Centers for Disease Control (CDC), in Atlanta, Georgia. Presently 46 states participate in the Behavior Risk Surveillance System.

Methodology

In order to make comparisons among states participating in the Behavioral Risk Factor Surveillance System, a standardized core questionnaire and interview protocol are used. The questions are developed by the CDC with input from the participating states. The core questions have been selected from national surveys such as the National Health and Nutrition Examination Survey, and the National Health Interview Survey. States with interests in subject areas not adequately covered by the core questionnaire may add questions to the survey. In 1987 Montana first added state-specific questions relating to AIDS knowledge and attitudes. Montana has asked questions about drinking and driving, and seatbelt laws since 1984.

The sampling process used is a multistage cluster design based on the Waksberg method for random digit dialing. Specifically, the total sample is proportionally distributed among the three-digit exchange codes in the state. Then, within each three-digit exchange, an appropriate set of usable telephone numbers is randomly selected and the sample numbers are obtained by adding a random value. When a number does not result in a completed call, another number is randomly selected by the computer.

Because of Montana's rural environment, this type of sampling plan is much more efficient than other versions of random digit dialing. It results in regional coverage of the state based on cities, towns, and rural populations, and it also gives individuals with newly listed and unlisted numbers an equal chance to be reached in the survey.

Standard procedures are used to identify an adult to be interviewed from the adults living at the selected household. Calls to the selected phone number are made according to a standard procedure with regard to time of day and number of callbacks. Interviews are conducted during one week of each month throughout the year. The schedule for interviewing is the same for all participating BRFSS states. In Montana, part-time employees of a research consulting firm conduct the interviews.

Upon completion of the interviewing cycle each month, the data are sent to CDC for editing. The BRFSS staff at CDC

compute weighting factors which are applied to the data to adjust for sampling bias and provide more representative population-based estimates of risk factor prevalence. Adjustments are also made to approximate census estimates of age, race, and gender. These adjustments attempt to correct for telephone non-coverage, non-response, and refusals.

The annual weighted and unweighted tabulations are provided to the states within two months of completion of the last December interview. The weighted data are used to compile this report.

Data Analysis

This report presents information on adult Montanans' primary risk behavior in nine areas: 1) seatbelt use; 2) sedentary lifestyle; 3) use of tobacco; 4) alcohol consumption; 5) hypertension (high blood pressure); 6) obesity; 7) cholesterol; 8) mammograms (women); and 9) routine medical checkups. It is believed these nine areas represent potential risk for the safety and health of Montanans. Data on these behaviors will be presented in terms of the degree to which Montanans engage in them and the degree to which their behaviors have changed through time - in most cases, over a period of five years.

It is important to emphasize that the data in this report in no way reflect how Montanans perceive their risk behaviors - whether, in fact, they recognize their behaviors as being actually or potentially harmful to them in either the short term or long term. This report is an examination of what adult Montanans said when they were asked about the occurrence of risk behaviors in their lives.

In the next section a summary of the results of the data analysis is presented. Following the executive summary, each of the nine risk behavior areas is presented as a separate chapter. The organization of the data is essentially the same for each chapter. The degree to which adult Montanans engage in the particular risk behavior being considered is described. In addition, the risk behavior is examined over time, in six of the nine areas between the years 1984 and 1988, to see if any changes have occurred in the behavior. A graph is presented for the purpose of showing change (or lack of change) over time.

A further step in the analysis then examines the risk behavior in terms of background characteristics of adult Montanans in each of the five years. These background characteristics have been organized into distinguishing levels or groups in the following categories: gender, age, race, education, income, marital status, and employment status. From this portrayal of degrees of risk behaviors, the five-highest-ranked categories are then presented with a discussion designed to illuminate the nature and types of adult Montanans who would

appear to be most at risk.

Finally, each risk behavior is examined in terms of the degree of change when the year 1984 is compared with 1988. Those categories of Montanans that show the higher degrees of change (whether an increase or decrease in at risk behavior) are then listed and discussed.

EXECUTIVE SUMMARY

This brief summary of findings regarding nine primary risk factors begins with a note of caution. Throughout this report statements will be made about categories of persons who are "at risk". Although there is a greater likelihood that persons in these categories may exhibit a certain risk behavior, it must be remembered that no data is collected in this survey which certifies whether respondents do or do not suffer from a specific disease, whether they are in fact not healthy, or with respect to the use of seatbelts, whether they drive recklessly.

The underlying assumption of risk analysis in this report must be that there is a probability that certain categories of persons may be at risk but there is no certainty that they are. There is not a one-to-one relationship between being at risk and actually experiencing a disease or unfortunate event.

Nine different risk factors are examined in this report. If eight of the risk factors are taken together (excluding mammograms for which only women were studied), a general profile is seen for those segments of the adult Montana population that are more highly at risk. Those most highly at risk are the less educated, the unemployed, the widowed and retired, those who are not married, and younger people.

These categories of Montanans represent a social class segment (the lower class), and stages of life (being elderly, unmarried or young). Adult Montanans most at risk no doubt already experience significant deprivations in life in many instances. It is hoped that readers of this report will use these data to design and target interventions which will promote healthy behaviors and improve the overall health status of Montanans, and not stigmatize or discriminate against those whose access to information and opportunity to utilize health services has been limited.

The table which follows represents a summary of the prevalence of key risk behaviors reported during this five-year period.

Table I. Summary of Proportion of Sampled Population at Risk in Five Categories: Years 1984 to 1988. State of Montana. (N=5,611)

Risk Categories	1984	1985	1986	1987	1988	1984-88 Combined
SEATBELT USE						
Seldom/Never use	46.5%	42.6%	33.7%	27.0%	12.1%	31.6%
Sometimes/Seldom/Never	68.9	65.0	59.9	48.7	27.7	53.2
HYPERTENSION						
Told Blood Pessure High/Still High	1.8	1.7	1.4	1.4	1.0	1.4
Told Blood Pressure High	21.5	19.2	19.6	16.8	20.2	19.3
Told Blood Pressure High-Taking Medicine	17.4	15.5	17.4	15.2	17.3	16.5
OBESITY						
Greater Than 120% of Weight for Height Percent of Median	19.2	20.7	23.1	20.8	20.8	21.0
SMOKING						
Current Smokers	29.6	25.8	23.2	22.6	20.8	24.2
DRINKING						
Acute Drinking (5+ on at least one occasion)	22.7	20.6	18.2	19.1	18.2	19.6
Drink & Drive (Driven at least once with too much to drink)	5.7	4.8	4.9	4.6	4.3	4.8
Chronic Drinking (Having 60+ drinks permonth)	5.2	6.0	3.8	4.0	4.2	4.6

Sample Size for Years: 1984, N=860; 1985, N=1188; 1986, N=1188; 1987, N=1188; 1988, N=1187; Combined 1984-1988, N=5611.
Source: Centers for Disease Control. Behavioral Risk Factor Surveillance System. Atlanta, Georgia.

With these notes, a brief summary of findings with respect to the nine behavioral risk factors in this study is now presented.

1. Use of Seatbelts. Adult Montanans as a whole have dramatically reduced their risk behavior with respect to nonuse of seatbelts. In 1984 slightly more than 46% "seldom or never" used seatbelts and by 1988 that percent had dropped to 12.1. Categories of Montanans highest at risk for seldom or never using seatbelts are the unemployed, the less educated, those economically poorer, those not married, and younger people.

2. Sedentary Lifestyle. There was a small reduction of risk behavior among Montanans with respect to sedentary lifestyle. Categories of those less likely to engage in some type of physical activity were the widowed, retired, and those over 60 years in age, as well as the less educated and those economically poorer. Walking was named by adult Montanans overall as their most frequent physical activity, with gardening second, followed by a number of more rigorous activities such as running, jogging, bicycling, aerobics, and so on.

3. Tobacco Use. There has been a decline in cigarette smoking by Montanans during the five-year period between 1984 and 1988. In 1984 about 30% smoked cigarettes, while by 1988 about 22% smoked. Those who were unemployed and those who were divorced or separated were among the categories of Montanans most at risk for cigarette smoking.

Although the percent of adult Montanans who use smokeless tobacco seems low (prevalence is presently around 7%), Montanans' use of smokeless tobacco use is greater than most participating BRFSS states. There is also evidence that use of smokeless tobacco may be increasing. Use is most prevalent among young adults and males.

4. Use of Alcohol. About one-fifth of the adult Montana population engaged in acute drinking (having 5+ drinks on one occasion) throughout the five-year period of this study. There was a slight reduction in alcohol consumption, but in a statistical sense that reduction could simply be due to chance factors. Higher at risk for alcohol consumption were those who were not married, young adults, males, and the unemployed.

5. Hypertension (High Blood Pressure). About one-fifth of the adult Montana population has been told they have high blood pressure and that proportion has been stable throughout each of the years between 1984 and 1988. Hypertension is related to life-cycle stage in that those higher at risk were the retired, the widowed, and those over 60 years of age. Montanans who were less educated and the poor were also at higher risk for

hypertension.

6. Overweight. One-fifth of the adult Montana population is at risk for obesity and that proportion did not change significantly over the five-year period. Those at higher risk were the less educated, the middle-aged, the widowed, those over 60 years of age, and the retired.

7. Cholesterol. Only two years of data were available with respect to Montanans and cholesterol. About 58% of adult Montanans have been checked for cholesterol - thus about 42% may be at risk since they do not know their cholesterol level. Categories of Montanans who have not been checked were those who were unmarried, young adults, homemakers/students, and the unemployed. In general, young Montana adults have not been checked for cholesterol in comparison with the rest of the adult population.

8. Mammograms. More than 9 out of 10 adult Montana women have heard of mammograms; only 36% have actually had mammograms. Those who have not had mammograms were younger women, those not married, and students.

9. Routine Medical Checkups. About 60% of adult Montanans had a routine medical checkup during 1987 and 1988 combined. Categories of Montanans who had not had checkups were males, those 25-39 years of age, the employed, those in the higher income bracket ($35,000+), and those who were divorced or separated.

I. USE OF SEATBELTS

The National Highway Traffic Safety Administration has documented the effectiveness of safety belts in preventing injury and death in motor vehicle crashes. Seatbelts are estimated to reduce motor vehicle fatalities by 40% to 50% and serious injuries by 45% to 55% (Mueller, et al., 1988).

Five-Year Trend

Montanans have significantly reduced their risk behavior for nonuse of seatbelts. As shown in Figure I.1, the proportion of adult Montanans who have NOT used seatbelts has decreased each year between the years 1984 and 1988. In 1984, slightly less than 70% (68.8%) indicated they "sometimes, seldom, or never" used seatbelts; by 1988, that proportion had dropped to 27.7% - a difference of 41.1% in the reduction between 1984 and 1988.

A higher measure of risk behavior for seatbelt nonuse - those who "seldom or never" used seatbelts - also showed a significant reduction in the five-year period: 46.4% in 1984 diminished to 12.1% in 1988. The decline in seatbelt risk behavior was steady throughout the five-year period.

This reduction in seatbelt risk behavior is no doubt associated with the implementation of a mandatory seatbelt law in Montana, beginning in 1986, as well as the public education campaign regarding the benefits and responsibilities related to proper seatbelt use. The reductions in seatbelt risk behavior are statistically significant and would not have happened by chance alone.

Seatbelt Risk for Categories of Montanans

The relative degrees of seatbelt risk behavior for six categories of the adult Montana population are shown in Appendix B. Seatbelt risk behavior is defined as those who "seldom or never" used seatbelts. The percent of at-risk Montanans for seatbelt use are shown in Appendix B, Table 4 for each year between 1984 and 1988, as well as a combined five-year set of risk groups.

Throughout the five-year period under examination, two categories of Montanans show a pattern of relatively high-risk behavior for not using seatbelts: those who earn less than $10,000 per year and those who are unemployed. These two categories overlap no doubt with respect to their members; they have the lowest earnings and they are not working for financial gain.

Two other categories of Montanans which showed a higher

Figure I. 1

SEATBELT USE
1984-1988

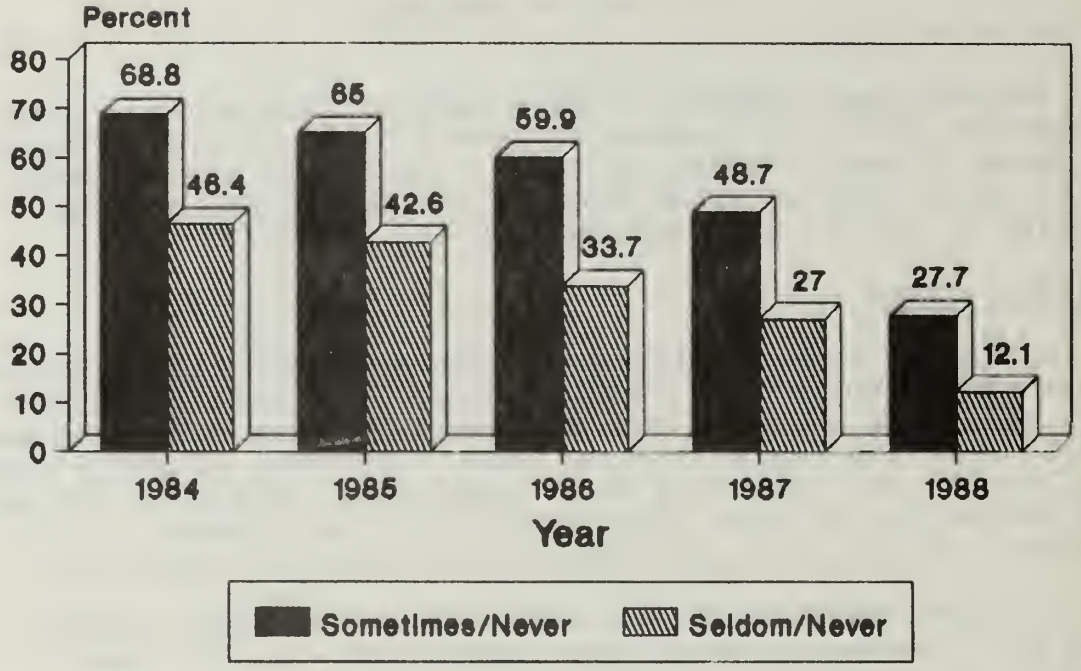
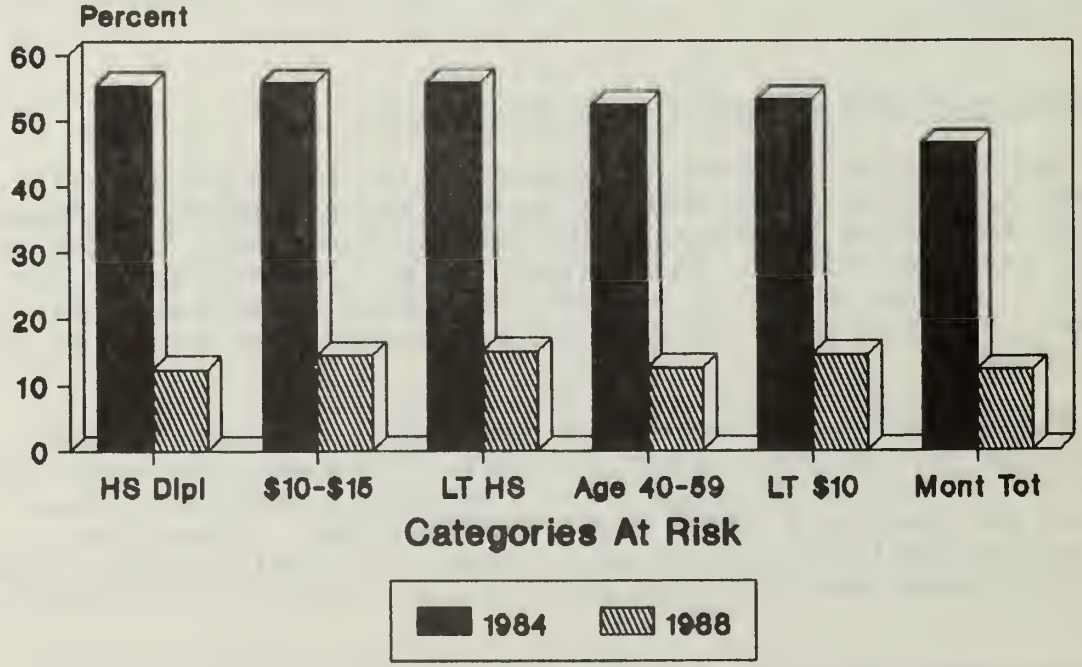


Figure I. 2

SEATBELT USE
Greatest Change: 1984-1988



level of risk behavior for seatbelt nonuse were those who are not married and those with less than a high school degree or GED certification.

These four at-risk groups, those with the least financial earnings (LT $10,000), those who were unemployed, those not married, and those with less than a high school degree constitute a set of categories with much in common with respect to their position in our society. They represent a group less well-off in numerous ways, and because they may be hard to reach, they pose a special challenge to those who wish to increase the use of seatbelts by Montanans.

Change in Seatbelt Risk Behavior Over Five Years

In 1984, 46.4% of adult Montanans indicated they "seldom or never" used seatbelts; by 1988, that percent had dropped to 12.1% - a reduction of 34.3% between the 1984 and 1988 (Figure I.2). In every category a reduction in seatbelt risk has occurred between 1984 and 1988, clearly indicating that this change in behavior has taken place across the spectrum of Montanans.

The degree of change in seatbelt risk behavior between 1984 and 1988 is shown for categories of the population which have shown the greatest change. The magnitude of the reduction in seatbelt risk behavior in the five-year period is impressive, with several categories of Montanans showing a reduction of over 40 percentage points.

II. SEDENTARY LIFESTYLE

People who are physically fit are able to perform routine physical activities including household chores, work, sports, and dance more effectively and safely. Coronary heart disease has been shown to occur twice as frequently among sedentary men as in men who regularly participate in vigorous physical activity. Other studies have suggested that physical activity prevents the development of and aids in the control of hypertension. Walking, running, and other weight-bearing activities correlate with bone density and are thought to prevent the development of osteoporosis.

Five-Year Trend

Throughout the five-year period from 1984 to 1988, adult Montanans participating in the risk behavior assessment surveys were asked a series of questions about their various physical activities. More specifically, they were asked to list their regular physical activities outside of work, and tell how frequently and how strenuously they engaged in them.

Figure II. 1

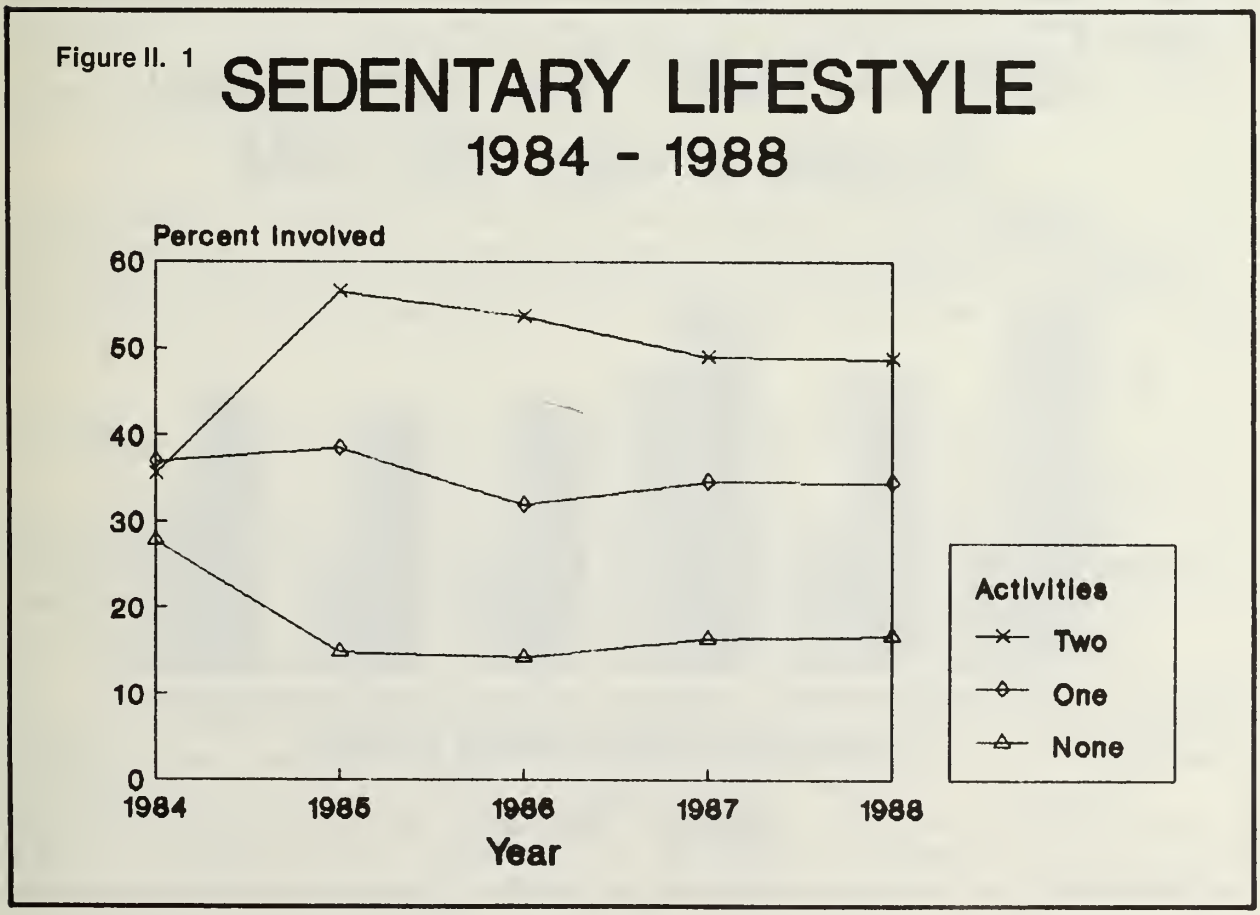


Figure II. 2

SEDENTARY LIFESTYLE

1984 - 1988 Combined

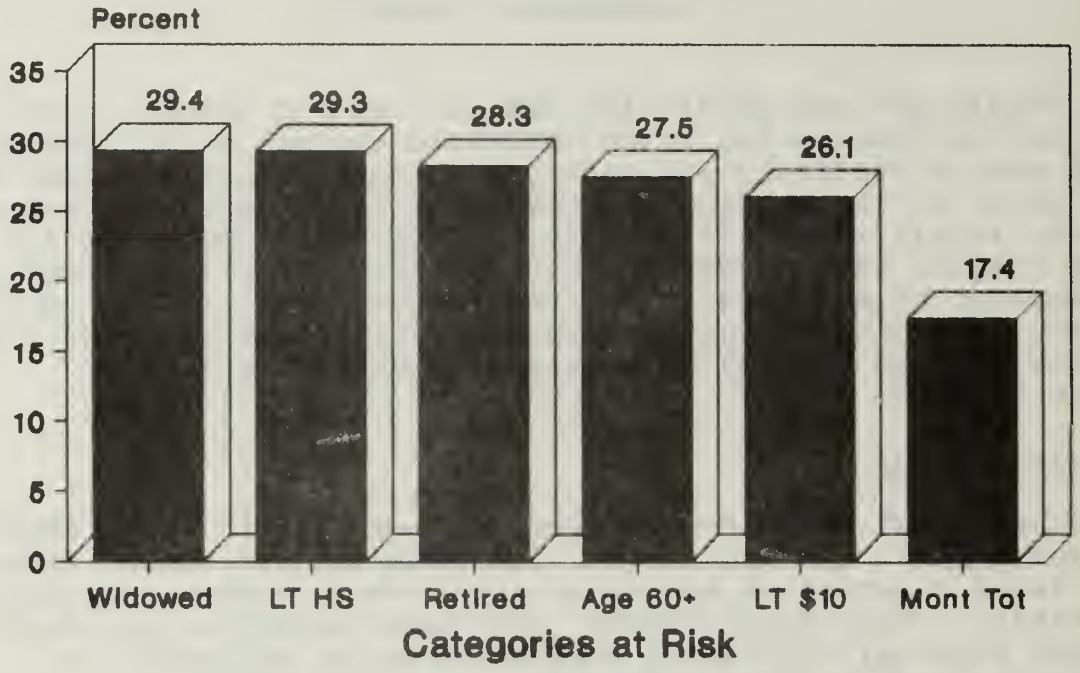


Figure II. 3

SEDENTARY (No Activities)

Greatest Change: 1984-1988

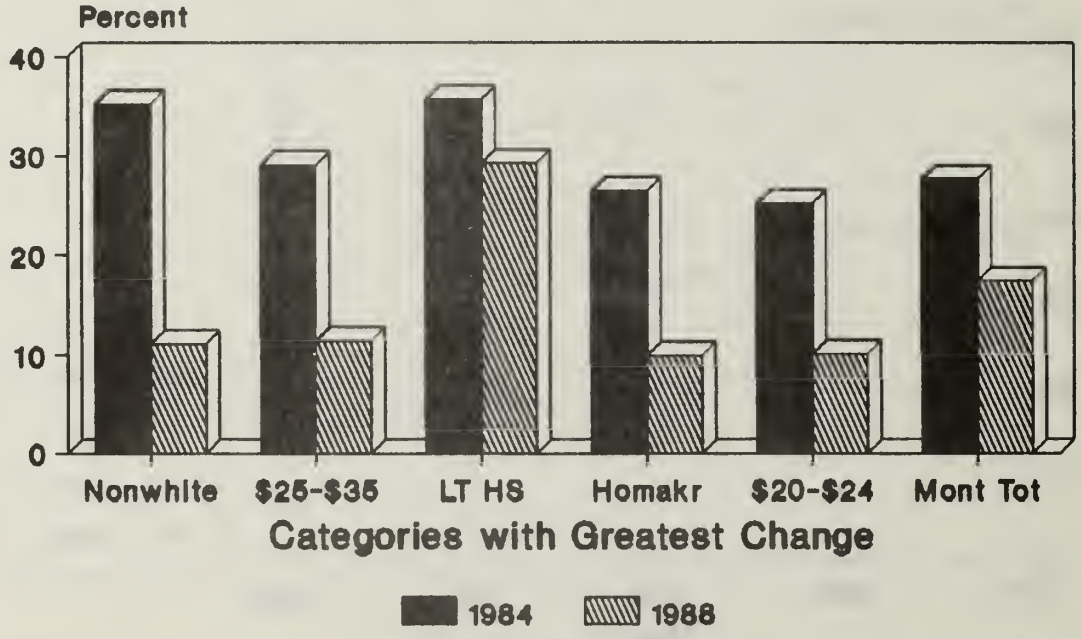


Figure II.1 shows the proportion of adult Montanans in each of the five years who participated in no activities (this does not include the activity of work), one activity, or two activities. Changes in the levels of physical activity are also shown in Figure II.1. The data indicate that percent of adult Montanans participating in physical activities changed rather dramatically between the 1984 and 1985 data-gathering periods. The proportion of Montanans who indicated involvement in two activities increased from 35.5% to 56.6%, a change of +21.1%. And on the other hand, those most at risk - with no involvement in physical activities - decreased from 27.7% to 14.9% between 1984 and 1985 - a difference of 12.8%.

In general over the five-year period between 1984 and 1988, the trend has been a reduction in risk behavior with respect to a sedentary lifestyle. Furthermore, that trend is statistically significant; it could not have happened simply by chance alone. With the exception of 1984, the larger proportion of adult Montanans each year have been engaged in two activities outside of work. However, it is worthy to note that there has been a reduction in the proportion engaged in two activities since 1985: in 1985, 56.6% were engaged in two activities, while in 1988 that figure had dropped to 48.8%.

Montanans most at risk for a sedentary lifestyle are those who indicated they participated in no activities outside of work. Although the proportion with no activities showed a sharp reduction between 1984 and 1985, it is again important to observe that the proportion with no activities has been increasing since 1986 and in 1988 was close to 17%.

In general, Montanans appear to be increasing their involvement in physical activities outside of work and thus reducing the risks inherent in a sedentary lifestyle. In 1984, 72.3% of adult Montanans participated in at least one physical activity; by 1988, over 80% (83.3%) participated in at least one type of physical activity.

Categories of Montanans At Risk for Sedentary Lifestyle

In this section, emphasis will be placed on those adult Montanans who indicated no participation in physical activity outside of work (Figure II.2). Throughout the five-year period combined, this "no-activity" group constituted 17.4% of adult Montanans.

Proportions of various categories of Montanans indicating no physical activities are shown in Appendix B, Table 6. A summary of Montanans most at risk for each year, as well as the combined five-year period, is shown in Appendix B, Table 7. Several generalizations can be made about at-risk sedentary lifestyles. First, a less active lifestyle is related to stage of life: the retired, the elderly (60+ years), and the widowed are three of

the higher at-risk categories. Second, those with less formal education (LT HS/GED) and those with the lower incomes (LT $10,000) were at higher risk. Efforts to assist those Montanans most at risk for a sedentary lifestyle will have to focus those efforts on the elderly, the less educated, and those who have less income.

Change in Sedentary Lifestyle Risk Behavior Over Five Years

The proportion of those who participated in no physical activities between 1984 and 1988 decreased by 11.0%. In 1984, 27.7% participated in no physical activities, while in 1988, 16.7% participated in no physical activities. The population categories with the greatest reported reduction in sedentary lifestyle from 1984 to 1988 are shown in Figure II.3.

Although nonwhite Montanans show the greater magnitude of change with respect to a reduction of at-risk sedentary behavior (a 22.4% reduction), undersampling of the nonwhite population limits a confident discussion of this change. In general it appears that younger Montanans have reduced their at-risk behaviors with respect to a sedentary lifestyle, as have Montanans who are in the higher income categories.

D. Types and Frequencies of Physical Activities

Montanans engaged in a large number of different physical activities between 1984 and 1988. The types of activities are shown in Figure II.4. These data are based only on those who indicated they participated in one or two activities. Walking ranks at the head of the list (47.3%) throughout the five-year period) and gardening ranks second (and substantially lower) at 18.1%. These activities varied considerably with respect to gender, life-cycle stage, and opportunity for involvement.

The frequencies in which Montanans engaged in physical activities are shown in Figure II.5 (again, data are shown only for those who indicated involvement in one or two activities). Activities would vary by the season, in many cases, but about 90% of Montanans who engage in some type of physical activity do so at least four times a month or more. About 61% of Montanans who engage in physical activities do so less than 15 times per month.

Figure II. 4

ACTIVITIES NAMED
1984-1988 Combined

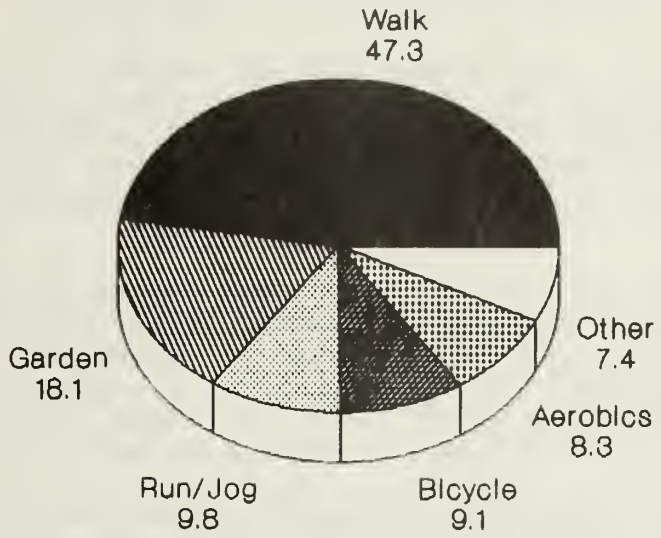
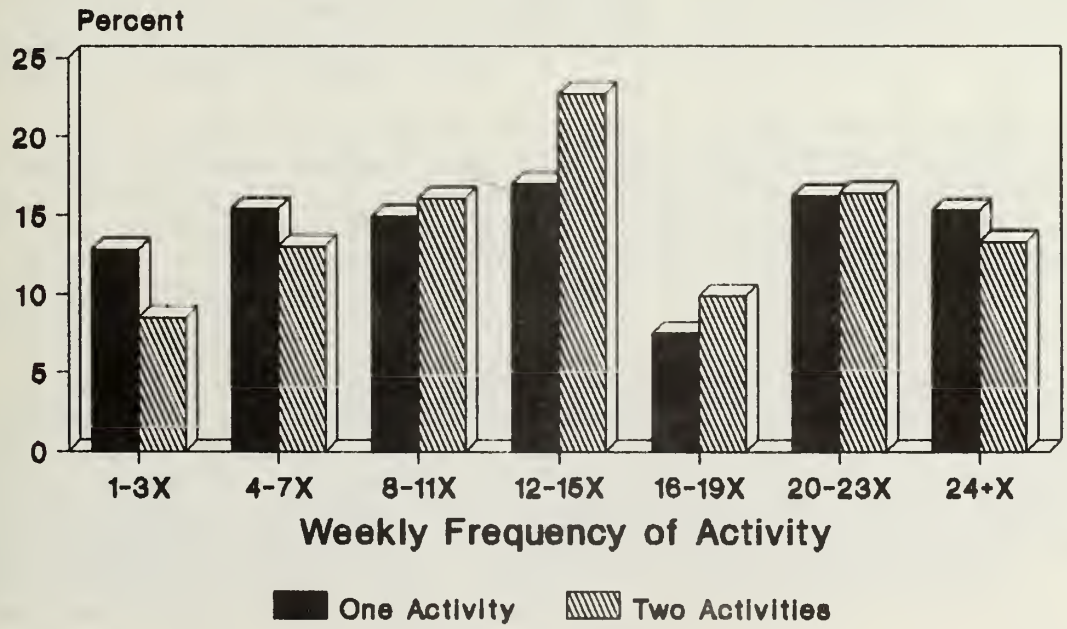


Figure II. 5

SEDENTARY LIFESTYLE
1984-1988 Combined



III. TOBACCO USE

(CIGARETTES & SMOKELESS TOBACCO)

In 1987 an estimated 150,000 Americans learned that they had lung cancer, most likely as a result of smoking cigarettes since an early age. Clearly the vast majority of lung cancer cases--nearly 85%--result from smoking (American Lung Association, 1987). In this respect, lung cancer is almost entirely preventable.

Toxic substances released into the air by burning cigarettes contribute to the level of indoor air pollution. These substances not only harm the smoker, but they may also harm nonsmokers in a smoker's environment. Low birthweight, increased risk of spontaneous abortion, fetal death and neonatal death have been shown to be associated with cigarette smoking.

There are clear health benefits to smokers who quit. Bronchial linings which have shown precancerous cellular changes may return to normal if a smoker quits smoking. Smokers experience a more rapid decline in lung function with age than do nonsmokers, and this rate of decline can be slowed by quitting. Currently lung cancer is the leading cancer killer in the United States and is the least curable form of cancer.

Five-Year Trend (Cigarettes) and Two-Year Trend (Smokeless)

Between 1984 and 1988, Montanans significantly reduced their at-risk behavior in smoking cigarettes. This reduction in risk behavior is statistically significant, and it would not have happened by chance alone.

Almost one-half of adult Montanans (49.0%) have never smoked cigarettes or have smoked less than 100 cigarettes in their lives. This proportion remained basically constant through the five-year period (See Figure III.1). The proportion of persons most at-risk for cigarette smoking (those who currently smoke) was reduced from almost 29.7% in 1984 to 21.6% in 1988, an 8.1% reduction in risk.

Data about the use of smokeless tobacco are available for two years, 1987 and 1988. Although two years of data are not sufficient to detect a significant trend, the figures indicate a need for concern. There was an increase in the use of smokeless tobacco between 1987 and 1988, although this increase was not statistically significant. In 1988 Montana ranked second among BRFSS reporting states with respect to the prevalence of smokeless tobacco use (see Figure III.2).

Figure III. 1

SMOKING
1984 - 1988

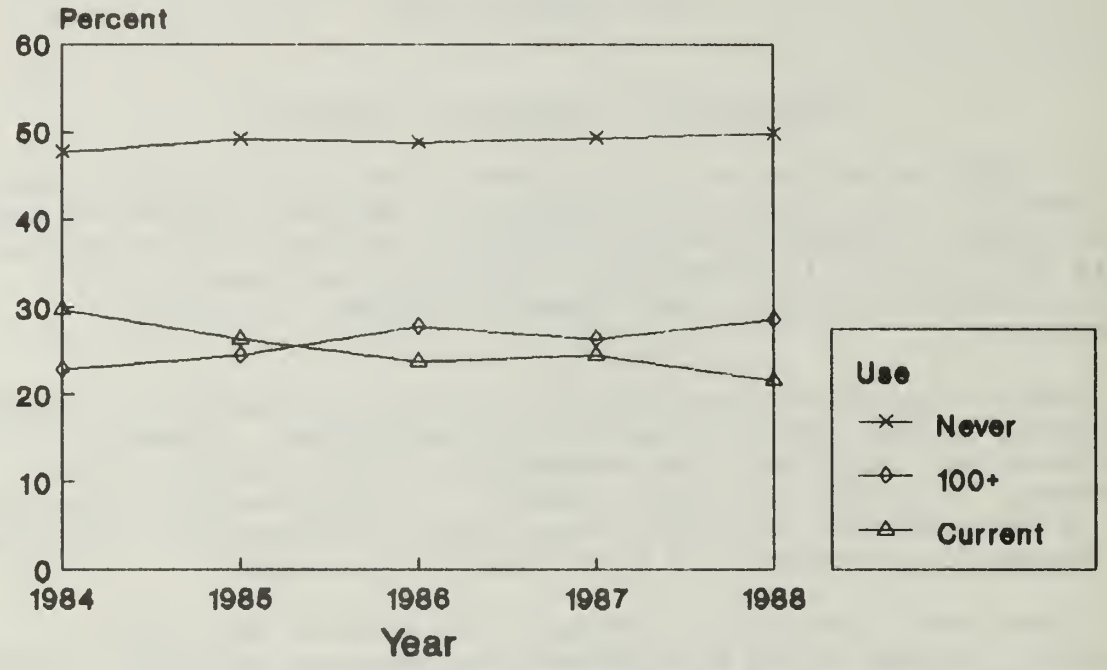
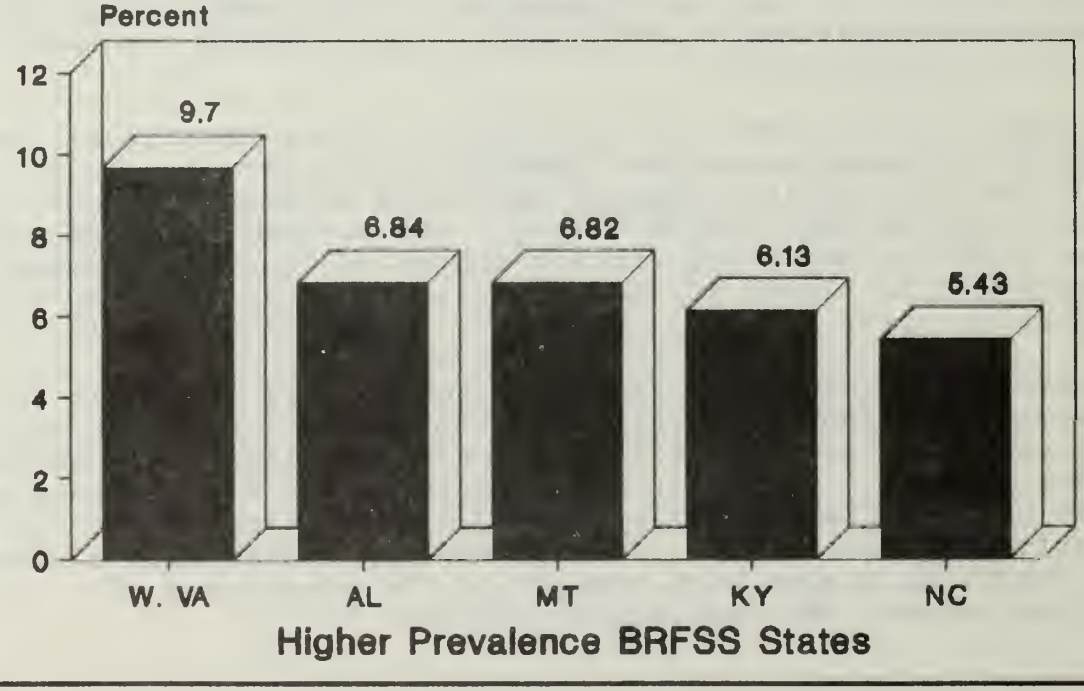


Figure III. 2

SMOKELESS TOBACCO USE
1988



Risk Behavior for Tobacco Use for Categories of Montanans

Summaries of cigarette smoking and smokeless tobacco use are shown for in Appendix B. Montanans with greater risk for tobacco use are identified in Figure III.3 and III.4 (for cigarette smoking and smokeless tobacco use, respectively).

Between the years 1984 and 1988, two groups of Montanans were at a relatively high risk for cigarette smoking: persons who were divorced or separated and persons who were unemployed. Persons with incomes less than $10,000 were also relatively high at risk for cigarette smoking throughout the five-year period. Cigarette smoking is thus prevalent among three categories of Montanans who have experienced problems in other areas of life: in marriage, in employment, and financially. This pattern reveals a relationship between cigarette smoking and the experience of social problems which is not unfamiliar to those who study risk behaviors.

Although interpretation of the data on nonwhite Montanans is statistically uncertain, nonwhites were one of the categories of Montanans at greater risk for cigarette smoking. As will be seen in the discussion below, nonwhites also had the larger decline in the use of cigarettes between 1984 and 1988.

Developing strategies to affect behavior change among these groups represents a significant challenge to those who would seek to reduce the many risks associated with the smoking of cigarettes.

Risks associated with the use of smokeless tobacco would appear to be most prevalent for younger males (Appendix B, Table 9). Males and those who are 18 - 24 years use smokeless tobacco at a rate more than twice that of the state's adults as a whole. Furthermore, the rate of use of smokeless tobacco appears to be increasing among these persons.

Change in Cigarette Smoking Over Five Years

Changes in those at risk for cigarette smoking (current smokers) are seen by comparing 1984 and 1988, in Figure III.5.

For the adult Montana population, there was a reduction in the percentage of those using cigarettes (8.1% fewer in 1988 than in 1984). One category showed an increase when the two years were compared - 3.6% more unmarried persons were likely to smoke cigarettes in 1988 than in 1984. A number of categories showed significant decreases in the use of cigarettes, specifically, nonwhites, moderate to lower income groups, those who were married, and those who earned $35,000 or more annually.

In general, Montanans have reduced their level of risk with respect to cigarette smoking. This reduction has occurred across

Figure III. 3

SMOKELESS TOBACCO USE
1984 - 1988 Combined

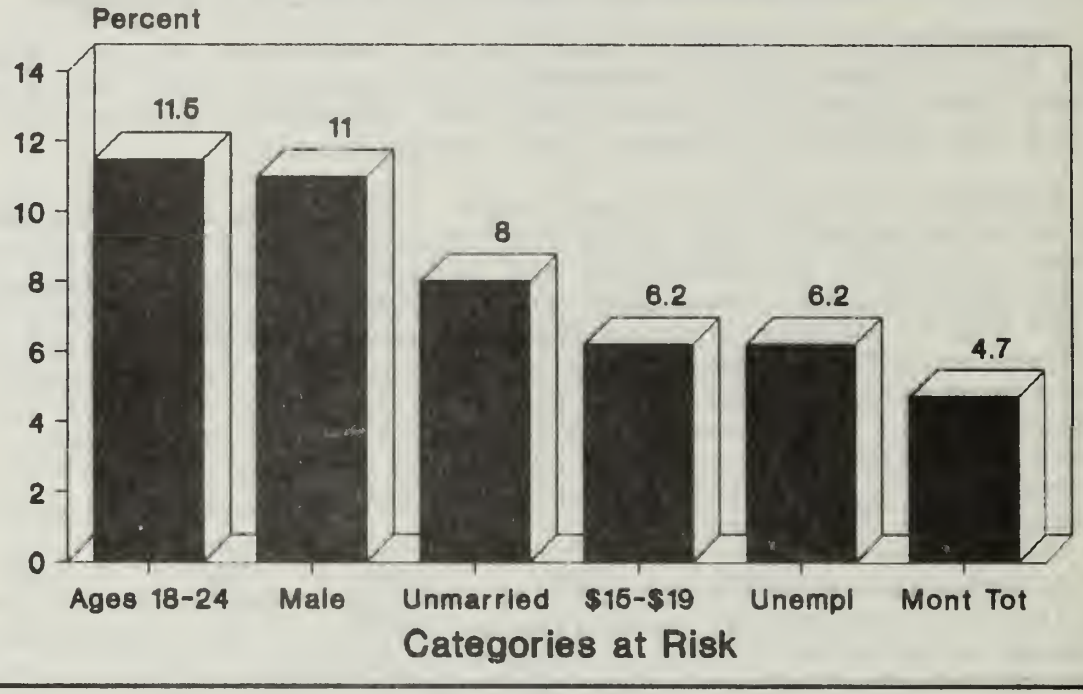
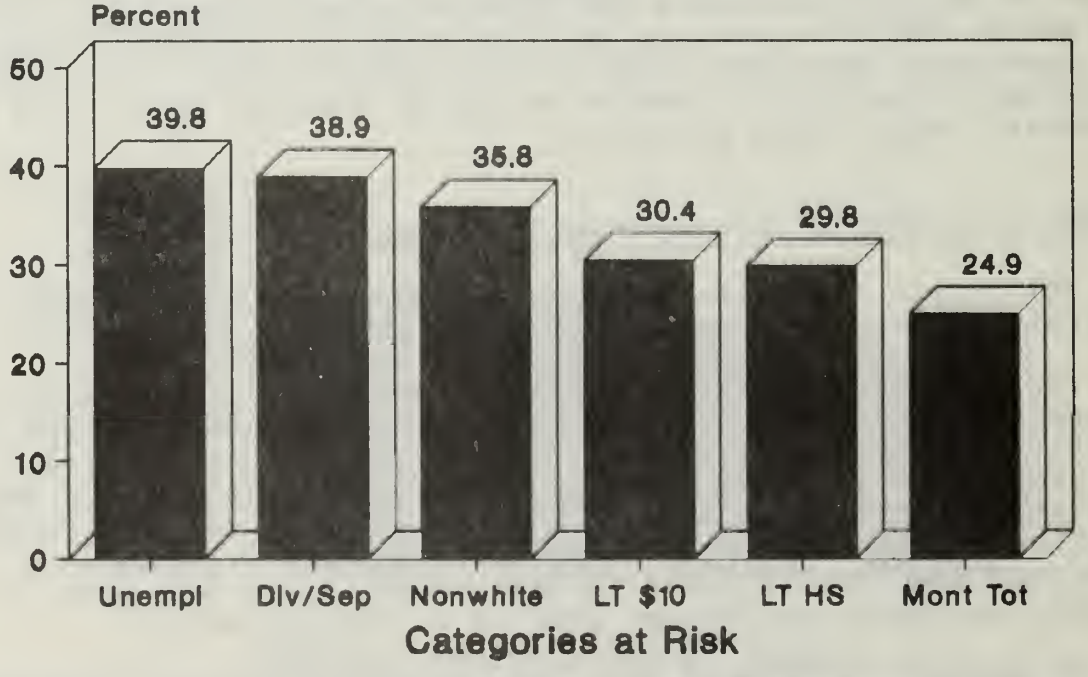


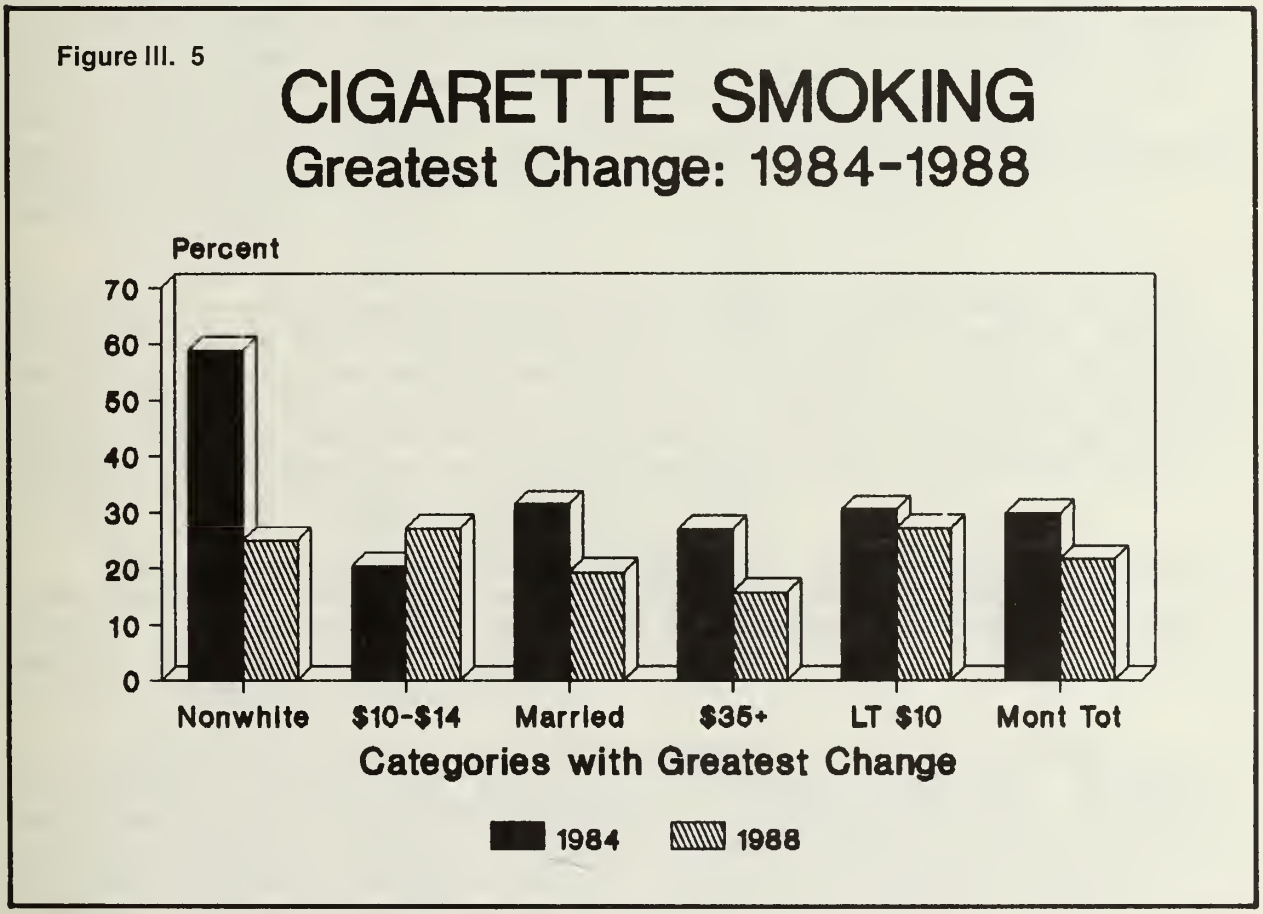
Figure III. 4

CIGARETTE SMOKING
1984 - 1988 Combined



many categories of the population examined - gender, age, race, education, income, marital status, and employment status. Use of smokeless tobacco, however, has shown an increase, especially among those who are younger and among males. The risks related to the use of smokeless tobacco are becoming increasingly known, and a special campaign to alert young adults and males to the dangers of the use of smokeless tobacco is needed.

Figure III. 5



IV. DRINKING ALCOHOL

The National Institute on Alcohol Abuse and Alcoholism reports that in 1985 about 18 million adults 18 years of age and over had problems resulting from alcohol use. The more severe consequences of alcohol-related problems range from the loss of a job, to arrest, or illness.

Many studies demonstrate that use of alcohol results in increased risk of oral cancers, including cancer of the pharynx, esophagus, and larynx, probably related to the concurrent use of tobacco. Primary liver cancer is also consistently associated with alcohol use, however, this cancer most often occurs along with cirrhosis of the liver. Other cancers which occur in association with alcohol consumption are cancers of the pancreas, rectum, and breast, although there is no evidence of a causal relationship.

Studies also show a relationship between chronic drinking and high blood pressure and greater risk of hemorrhagic stroke. Acute drinking is associated with greater risk of stroke due to cerebral infarction and hemorrhage. A greater risk for coronary heart disease is associated with heavy drinking. Alcohol affects liver function and causes liver disease either through the toxic effects on metabolism, or through malnutrition resulting from alcohol misuse. (Diet and Health, 1989)

The link between alcohol consumption and traffic injuries is unmistakable. Many studies document that crashes involving alcohol have more severe outcomes than other crashes. The more severe the crash, the higher the likelihood that alcohol was a factor (Haddon et al. 1984).

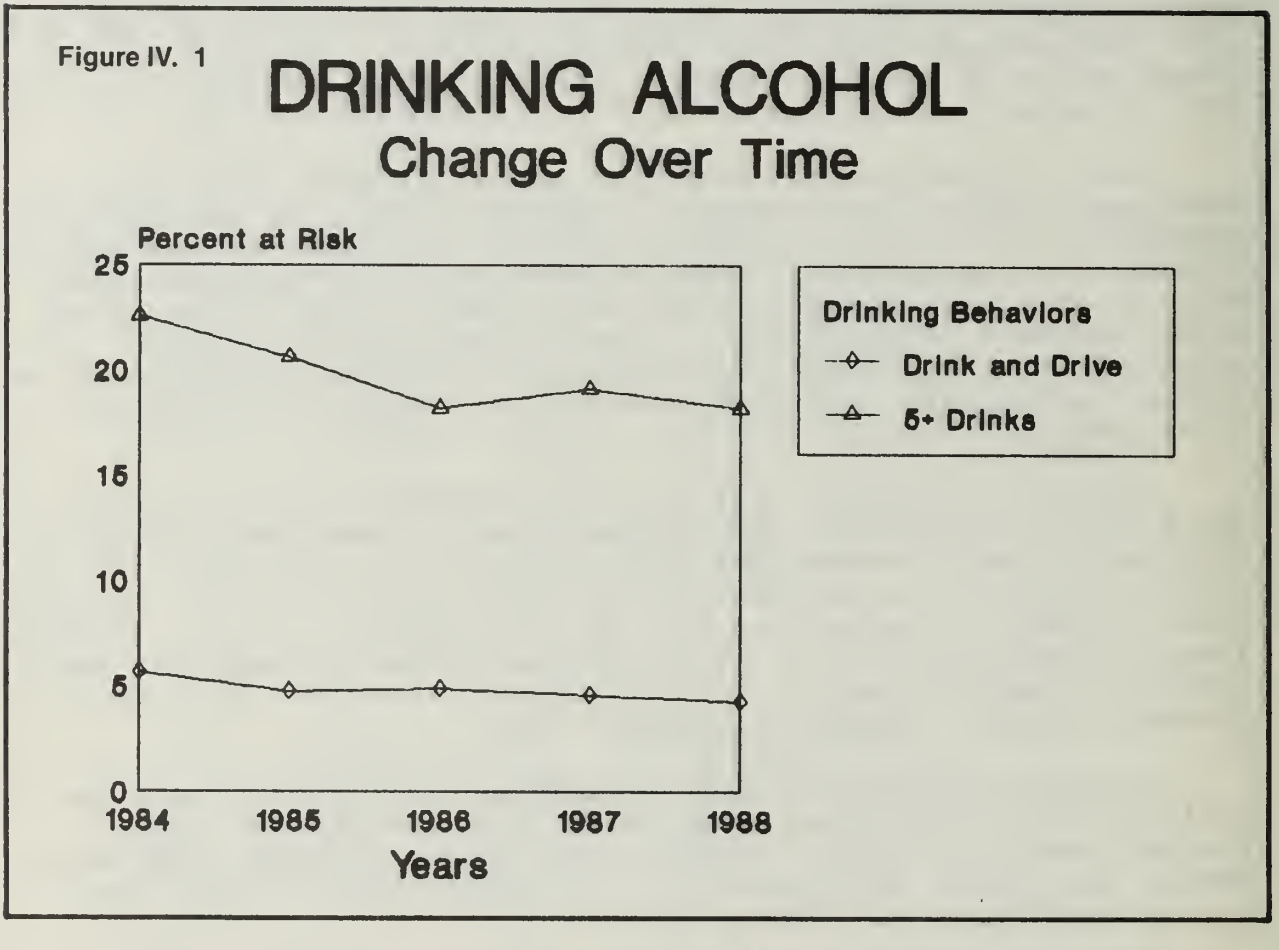
Since 1984 alcohol has been a factor in a decreasing percentage of the total accidents on Montana highways. Alcohol was involved in 19.2% of the highway accidents in 1984, and the rate has fallen to 16.2% in 1988. This translates into 2,597 alcohol related accidents out of a total of 13,462 in 1988. However, alcohol was a factor in nearly half of the fatal highway accidents from 1984 to 1988. Highway fatalities, in which the person killed had been drinking, ranged from 46.9% to 54.7% during the five year period. During the last five years accidents have been the third leading cause of death among all Montanans 18 and older, and they are the leading cause of death among young adults (age 18 - 34). (Traffic Safety Division , Montana Department of Justice)

Nationally, alcohol plays a role in about 20% of crashes involving serious injury to a driver or passenger, about 50% of all fatal crashes, and about 60% of all single-vehicle fatal crashes. There is little question that eliminating the combination of drinking and driving would result in dramatic decreases in death, injury, disability and costs for all age

groups. (Haddon, et al., 1984)

Five-Year Trend

Figure IV. 1



Adult Montanans slightly reduced their alcohol consumption in the five-year period between 1984 and 1988. Data presented in Appendix B, Table 11 reflect findings with respect to three behaviors: 1) acute drinking - having five or more drinks on at least one occasion during the month the survey was conducted; 2) drinking and driving - having driven at least once in the past month when the respondent knew they had too much to drink; and 3) chronic drinking - having had 60 or more drinks per month. The rate of change in two of these types of behavior - acute drinking and drinking and driving are shown in Figure IV.1. Chronic drinking (60+ drinks per month) declined slightly, but the reduction was not large, and it is not statistically significant.

On the average about 20%, or one-fifth, of adult Montanans engaged in acute drinking (5+ drinks on one occasion) in each of the five years under examination. Although there was some reduction in the rate of acute drinking between 1984 and 1988 that reduction was not statistically significant and could have been due to chance factors alone.

Figure IV. 2

ACUTE DRINKING
1988

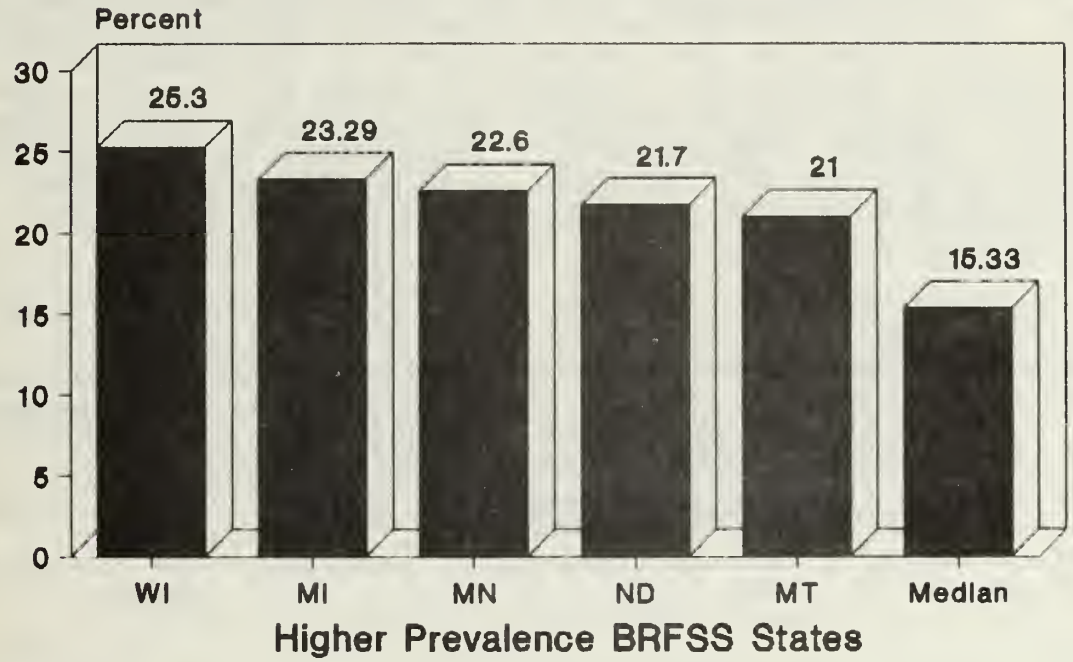
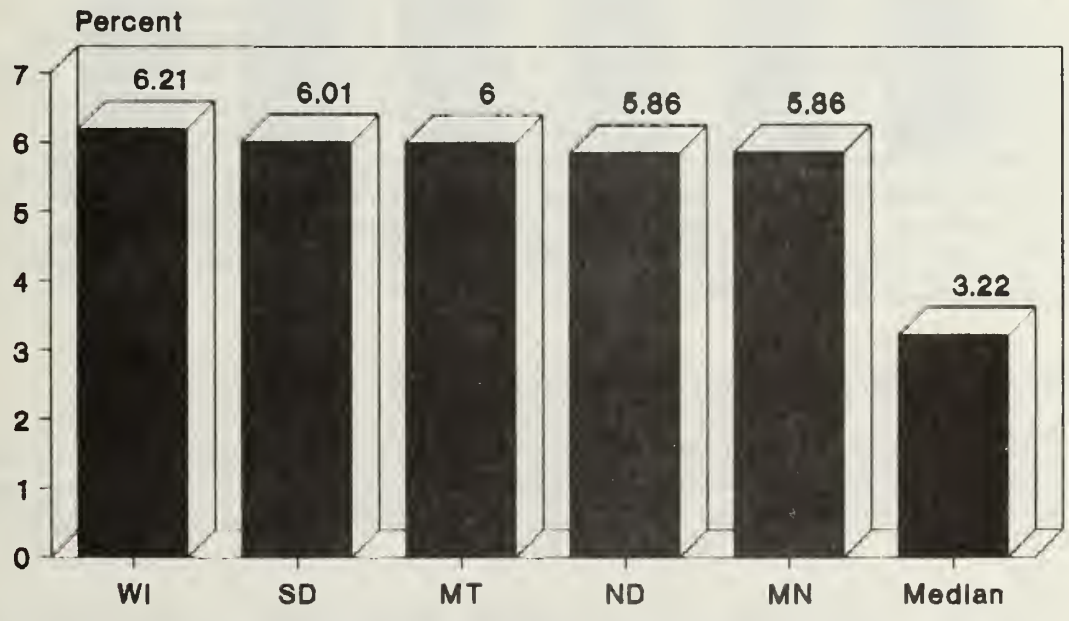


Figure IV. 3

DRINKING AND DRIVING
1988



Around five percent of adult Montanans indicated they had driven at least once in the past year when they had too much to drink. Again, data presented in Appendix B indicate a reduction in this risk behavior, but the magnitude of the reduction is not statistically significant. Figures IV.2 and IV.3 portray how Montana compared with other states participating in 1988 BRFSS surveys. (Weight formulas used by the Centers for Disease Control account for the variation in Montana's drinking and driving prevalence from that which are presented elsewhere throughout this report.)

Although there is a decline for both acute drinking and drinking and driving--a trend in the right direction for a reduction in the risk behavior in alcohol consumption--Montanans appear to have greater risk for drinking behaviors than people in other parts of the United States. A common pattern is shown by these three risk behaviors and would lead to a cautious generalization that alcohol consumption, on the average, among adult Montanans is diminishing slightly. All three risk behaviors showed a decline, generally, throughout the five-year period of 1984 to 1988.

Alcohol Consumption and Categories of Montanans

The pattern of acute drinking (5+ drinks on one occasion) will be examined in more detail in terms of gender, age, race, education, income, marital status, and employment. Data on these categories are shown in Appendix B, Table 12. A graph showing those Montanans most at risk with respect to acute drinking is shown in Figure IV.4 for the five-year period.

Acute drinking is strongly related to certain aspects of marital status, gender, and age. Those who are not married, and those who are age 18 to 25 years tend to engage in acute drinking at about twice the rate of the population as a whole. These represent overlapping groups of persons in Montana. Males, young adults in Montana (ages 25-39) and those who were divorced or separated also engaged in higher risk behavior with respect to acute drinking. These data are not out of line with those from national studies, a fact which should not diminish a concern for this type of risk behavior.

Change in Acute Drinking Over Five Years

Information presented in Figure IV.5 summarizes the changes in acute drinking patterns between 1984 and 1988. For the adult population of Montana as a whole, 4.4% fewer persons engaged in acute drinking in 1988 than in 1984.

Not all categories of Montanans experienced a decrease in acute drinking when 1984 and 1988 are compared (Appendix B, Table 13). The largest increase is shown for persons in the $10,000-

$14,999 income bracket, while very small increases are shown for those under 25 years of age and those categorized as homemakers/students.

Most categories of Montanans showed a decrease in acute drinking between 1984 and 1988. Although males and the unemployed were at high risk for acute drinking, they showed a rate of decrease more than twice that for the State as a whole. Also, those with high school degrees (or GED certification) and those in the middle income bracket ($20,000-$24,999) showed a substantial decrease in the rate of acute drinking.

Figure IV. 4

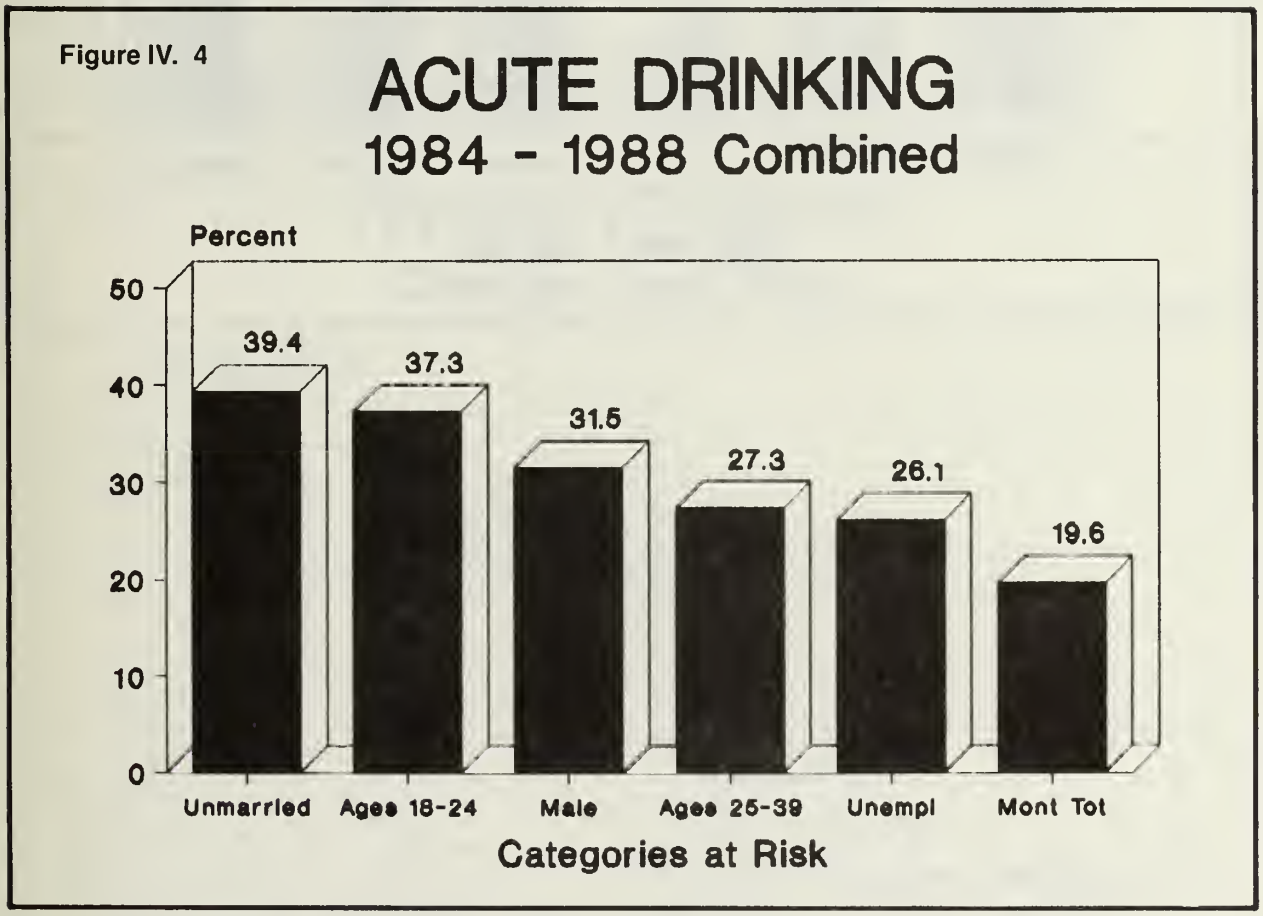
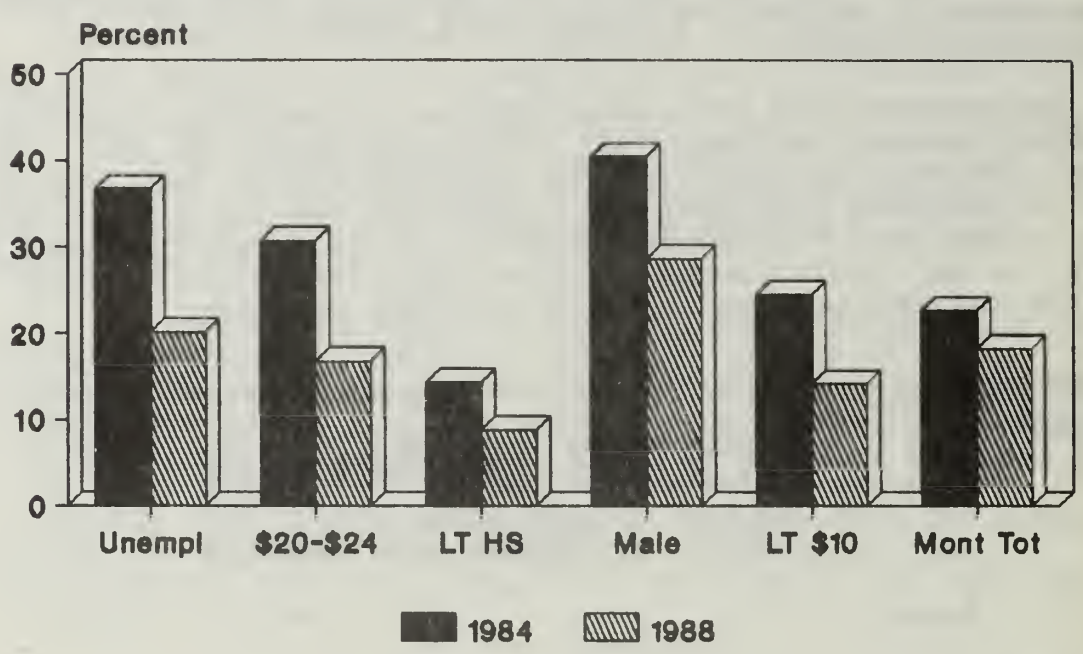


Figure IV. 5

ACUTE DRINKING
Greatest Change: 1984-1988

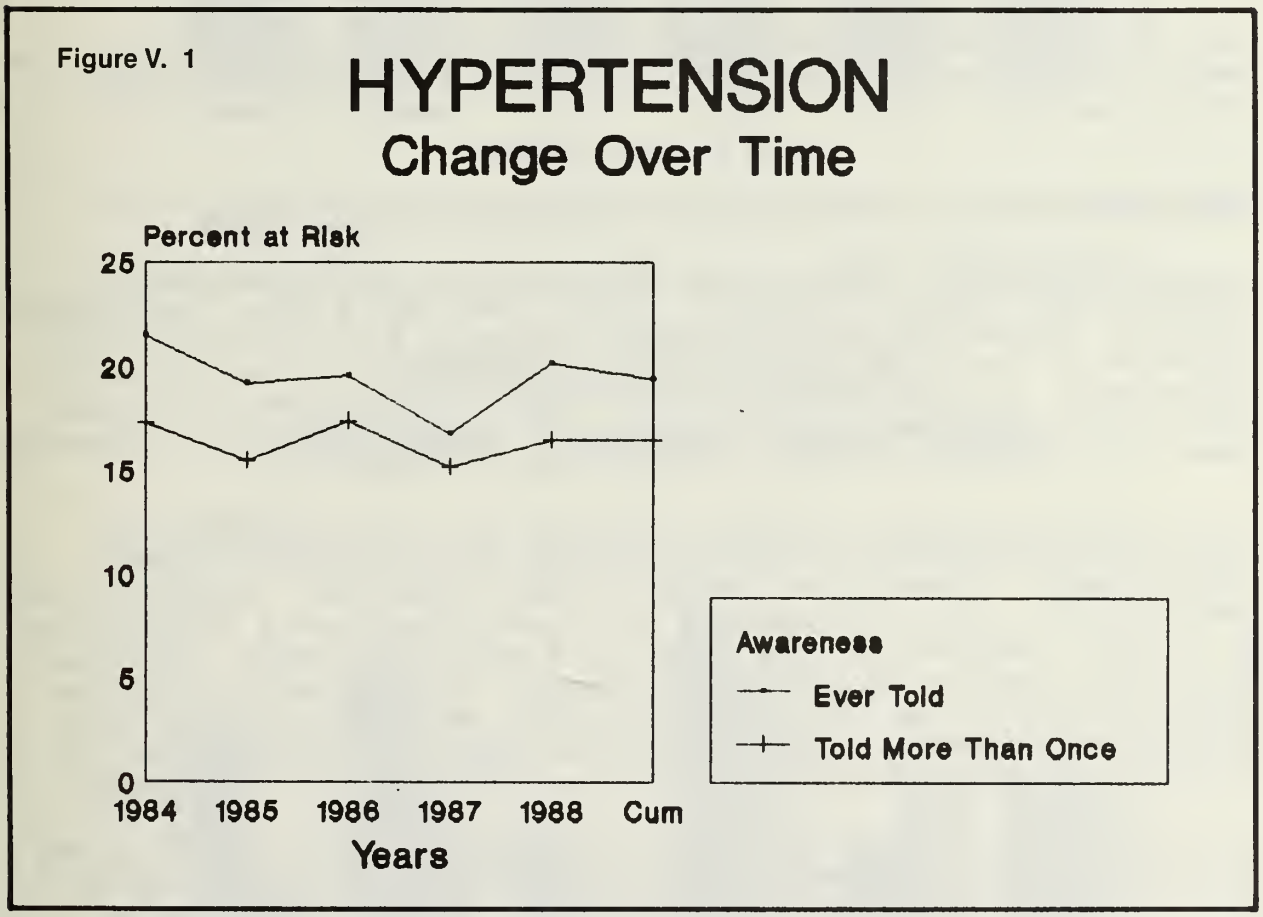


V. HYPERTENSION
(HIGH BLOOD PRESSURE)

Elevated blood pressure indicates that the heart is working harder than normal and that the arteries are under a greater strain. In effect, the heart has to work harder to generate enough pressure to force the blood through the arteries and supply the body's needs. If high blood pressure is not treated, it may become difficult for the heart to pump enough blood and oxygen to nourish the body's organs and tissues. This may contribute to heart attack, stroke, and atherosclerosis (American Heart Association, 1989).

Five-Year Trend With Respect to Hypertension

Figure V. 1



Hypertension in this study refers to the experience of having high blood pressure. Two different indicators are measured: 1) whether Montanans throughout the five year period had been told by a doctor, nurse, or health professional that they had high blood pressure; and 2) whether they had been told more than once or were taking medicine for high blood pressure.

Five-year trends for these two indicators of hypertension

are perhaps best shown in Figure V.1. About one-fifth of adult Montanans had been told they have high blood pressure (19.4% for the five-year period combined), and less than one-fifth (16.5% for the five-year period) had been told more than once that they had high blood pressure or were taking medicine for it. Although there was a very slight decrease in the proportion of Montanans who were told they had high blood pressure, the change was not statistically significant.

While these data provide an estimate of the prevalence of hypertension among persons who have been evaluated, they do not necessarily indicate whether Montanans are showing any change in the incidence of high blood pressure. The increase in the proportion indicating they have been told they have high blood pressure between 1987 and 1988 may be a result of more Montanans being professionally assessed for high blood pressure.

However, in the next section it is evident that the incidence of known high blood pressure varies considerably in the adult Montana population and that there is a pattern to that variation.

High Blood Pressure and Various Categories of Montanans

By examining the various categories of adult Montanans (gender, age, race, education, income, marital status, employment status), several definite patterns for risk are observed. Appendix B, Table 14, reflects by background characteristics the prevalence of high blood pressure among Montanans who have been told they have high blood pressure. A summary of those Montanans most at risk for hypertension is shown in Figure V.2.

The occurrence of hypertension (i.e., being told one has high blood pressure) is highly related to the stage of life; specifically, elderly Montanans are most affected. Montanans who were retired, over 60 years of age, and widowed were about twice as likely, compared to the state as a whole, to report they had been told they had high blood pressure. While about 19% of the adult population as whole reported they had been told they had high blood pressure, about 38% of the retired, elderly (over 60 years), and widowed had been told they had high blood pressure.

A second pattern with respect to hypertension is also shown in Figure V.2. Those with less than a high school eduction or GED and those with annual earnings less than $10,000 reported high prevalence of hypertension.

Change in Hypertension Over Five Years

There was very little change in the proportion of Montanans who were told they had high blood pressure in 1984 and those who were told the same in 1988. Data reflecting changes in rates of hypertension for the various categories of the population are

Figure V. 2

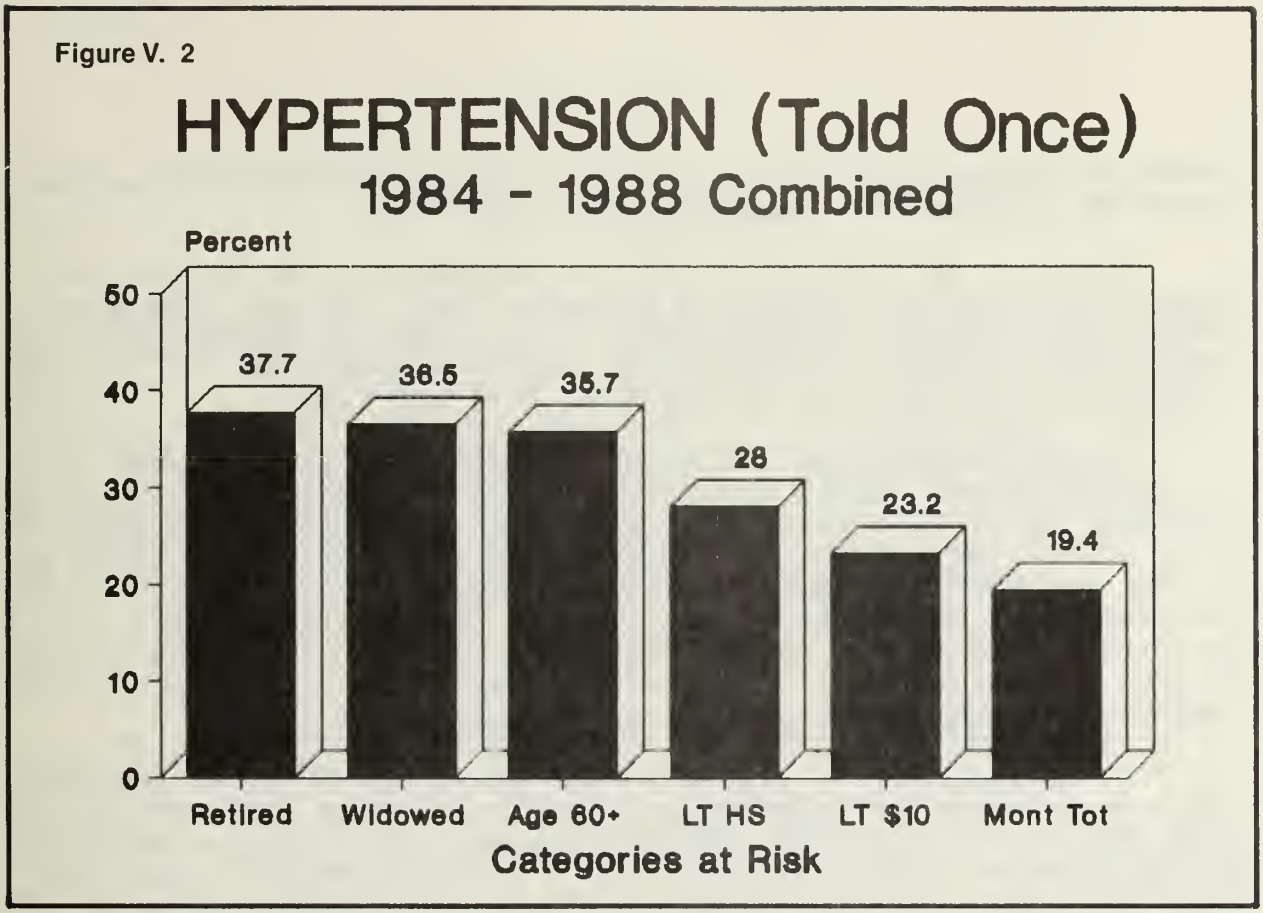
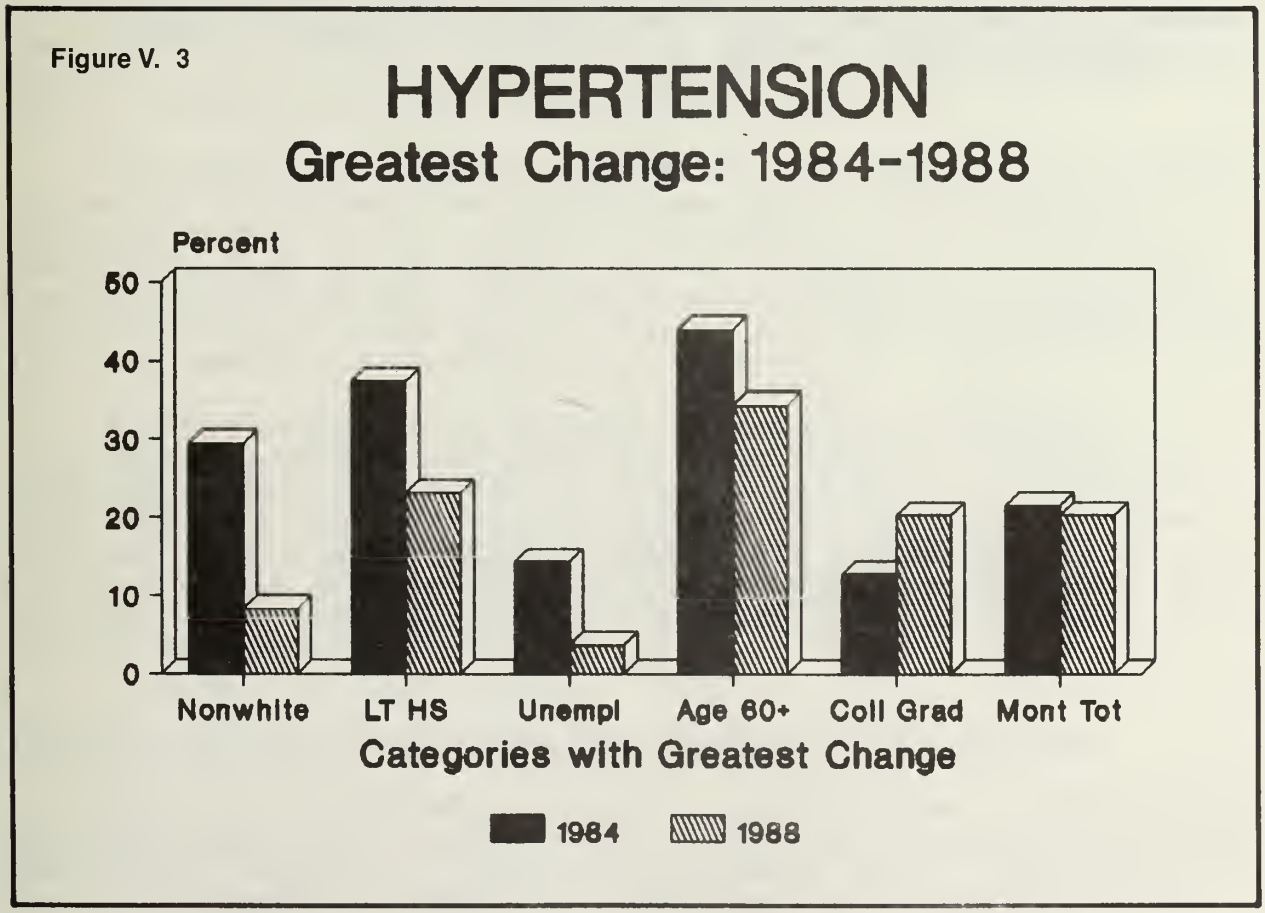


Figure V. 3



shown in Appendix B, Table 15. The five categories showing the greatest changes are summarized in Figure V.3.

A number of categories show an increase in the degree of known incidence of high blood pressure when 1984 and 1988 are compared: college graduates had a 7.5% increase between the two years; those who were divorced or separated also had a substantial increase (5.0%) between 1984 and 1988.

Several categories had a notable decrease in the known incidence of high blood pressure. Nonwhites, for example, had a decrease of 21.1% between 1984 and 1988; those with less than high school degrees (or GED certifications) showed a decrease of 14.2%; and the unemployed had a decrease of 10.6%. These decreases may be due to a reduction in the rate at which nonwhites, the less formally educated, and the unemployed consult health professionals. Or these data may indicate a real reduction in the prevalence in hypertension.

It is possible to estimate that about one-fifth of Montana's adult population had high blood pressure. Since hypertension is symptomless, it is likely other Montanans also experienced high blood pressure and did not know it. It is altogether possible that the rate of known incidence of high blood pressure will increase as more effective screenings of the population expand. However, if public screenings for high blood pressure are not widely available, the "true" estimate of hypertension among Montanans will not be known.

VI. OVERWEIGHT

For many years, data from the insurance industry have shown that excess body weight is positively correlated with premature mortality. Overweight is associated with diabetes, gallbladder disease, and hypertension. There is also an increased risk for cardiovascular disease and some cancers. For some time it has been recognized that there is a family tendency to obesity. Maintaining weight loss is also difficult for adults who have been overweight. Overweight children are more likely than children of "normal" weight to be overweight as adults (Diet and Health, 1989).

Five-Year Trend

Being overweight is a concern for many Montanans. Because individuals differ in so many ways, it is difficult to determine a precise measure of the incidence of being overweight in a population. One measure for estimating whether a person is overweight has been derived from a 1959 study carried out by the Metropolitan Life Study. A person is judged to be overweight if their weight-to-height ratio is 120% of the median weight-to-height ratio for the U.S. population. Data using this measure are presented in Appendix B, Table 16 for the five-year period of 1984 to 1988. The term "obesity" is conventionally used to describe the condition where an individual's height-to-weight ratio is more than 120% of the national median.

Montanans have changed very little with respect to the rate of obesity throughout the period covering 1984 through 1988. Using the criteria for obesity listed above, about one-fifth of adult Montanans are at risk for being overweight (21.0% for the five-year combined period). The time-line shown in Figure 6 clearly shows the magnitude of obesity and the lack of change in its incidence in the Montana adult population.

A second indicator regarding the condition of being overweight is shown in Appendix B. This indicator is based on a body/mass index, standardized for women and men. At this time data from only two years are available. The trend shown between 1987 and 1988 indicates that Montanans may be realizing an increase in the prevalence of overweight when the body/mass index is used. This conclusion is tentative and will be verified as surveys continue.

Incidence of Being Overweight and Categories of Montanans

There is considerable variation in the degree to which adult Montanans experience obesity. An array of percentages indicating the varying degrees of obesity for segments of the population is shown in Appendix B, Table 17. Those data are summarized with

Figure VI. 1

OBESITY
1984 - 1988 Combined

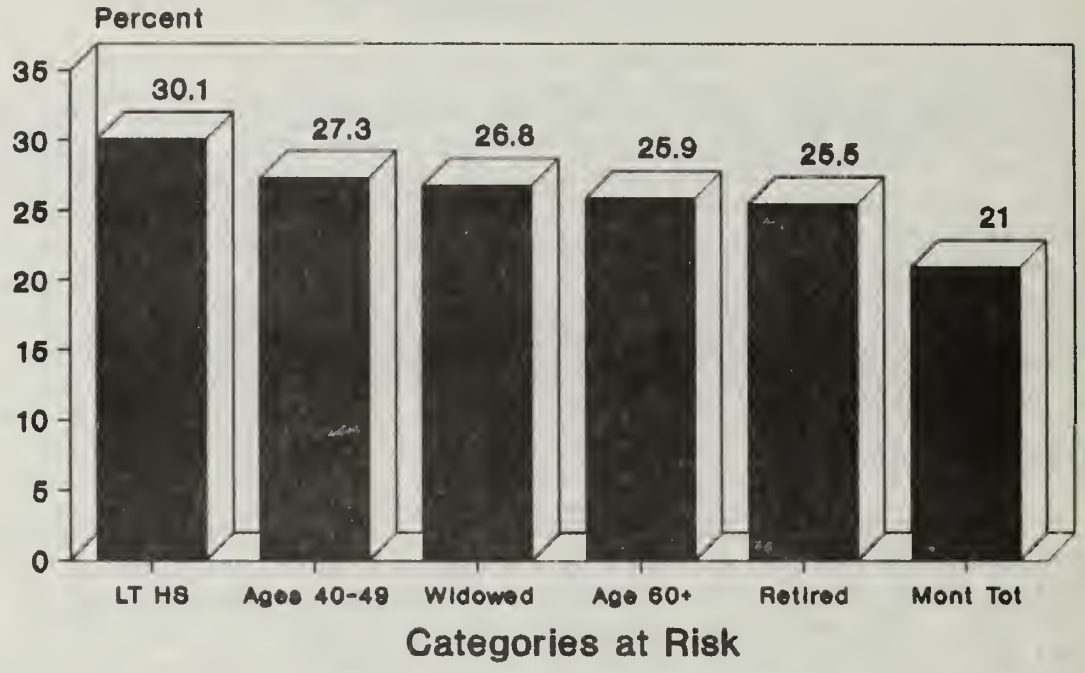
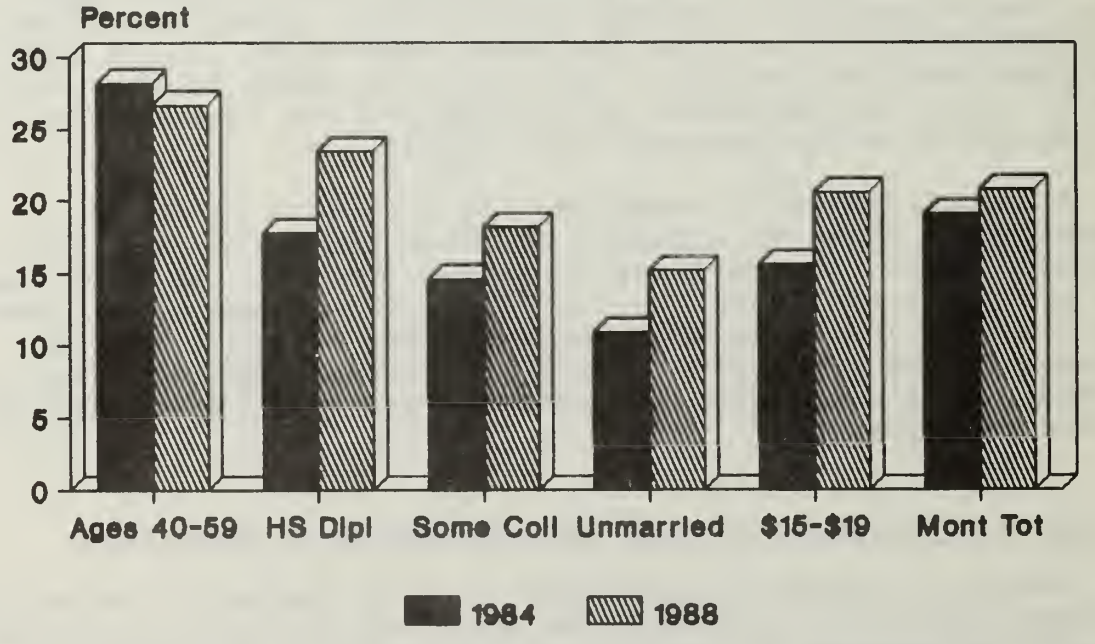


Figure VI. 2

OBESITY
Greatest Change: 1984-1988



respect to those who are at higher risk for obesity in Figure VI.1.

Obesity is related to certain segments of life stage. Throughout the five-year period between 1984 and 1988, those who were retired, widowed, and those over 60 years of age were higher at risk for obesity. Whereas about 21% of the entire adult population experiences obesity, those who are retired, widowed, and those over 60 years of age tended to experience obesity at closer to 27-28%.

Montanans 40-59 years of age also showed a higher rate of obesity. Throughout the five-year period under review, about 27% of the middle-aged persons in the state experienced obesity.

Finally, obesity may be most severe among those Montanans who are less formally educated (less than high school or GED). In the years 1985, 1986, and 1987, persons in this category experienced obesity at a rate of 33.7%.

These data indicate that being overweight is associated with being older and having less formal education.

Change in Obesity Rates Over Five Years

The incidence of obesity did not significantly lessen among Montanans between 1984 and 1988. Information in Figure VI.2 shows a varied pattern of change. Although it was previously mentioned that the elderly are relatively high at risk for obesity, the elderly in fact had the largest magnitude of change. The 1988 rate decreased by 14.8% in comparison with the 1984 rate.

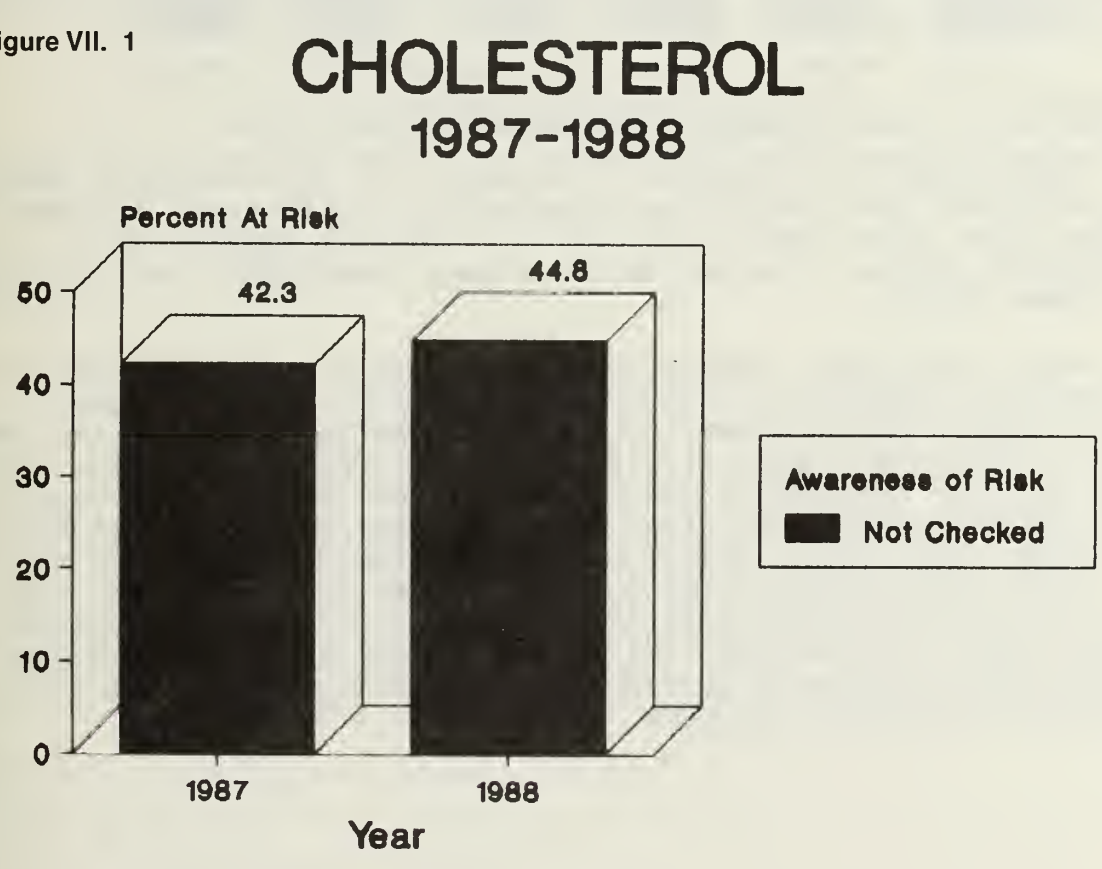
On the other hand, the category showing the next greatest change between 1984 and 1988 demonstrated an increase rather than a decrease in obesity. Those with a high school degree or GED certification show an increase of 5.7%. With the exception of the large decrease in the occurrence of obesity shown by those over 60 years of age, the various differences shown in Appendix B, Table 18 are not great and do not demonstrate significant changes in risk behavior.

VII. CHOLESTEROL

Cholesterol is one of the fat-like nutrients transported in the blood. The body uses cholesterol to build cell walls and to make hormones, and is able to make all the cholesterol it needs for these purposes. Excess cholesterol is introduced into the bloodstream through the consumption of food products which are high in saturated fat, such as meat and dairy products. Excess cholesterol remains in the body, building up in tissues and on the walls of coronary arteries. Arteries which are clogged with cholesterol deposits prevent the heart from getting necessary nutrients and oxygen, resulting in coronary heart disease (CHD). Evidence from numerous studies demonstrates that lowering the level of cholesterol will reduce the incidence of CHD.

Two Years of Data

Figure VII. 1



Data on cholesterol are available for only two years - 1987 and 1988. In 1987 almost 58% of adult Montanans had been checked for cholesterol and that proportion had dropped slightly in 1988 to 55.2% (Figure VII.1). About 44% of adult Montanans have never been checked for elevated cholesterol levels and are thus potentially at risk.

Although a two-year period is not a sufficient length of time to see the development of a trend, data presented in Appendix B, Table 19 would indicate that about half of adult Montanans are getting their cholesterol levels checked at the present time.

In comparison with other states participating in BRFSS Montana has the lowest percent of adults who have ever had the blood cholesterol level checked. Of Montanans who had their cholesterol levels checked in 1987, slightly more than 65% had been checked within the past year. By 1988, of those who had been checked almost 67% had done so within the past year. Furthermore, there was an increase between 1987 and 1988 in the proportion of adult Montanans who had been told their cholesterol levels in numbers (Appendix B).

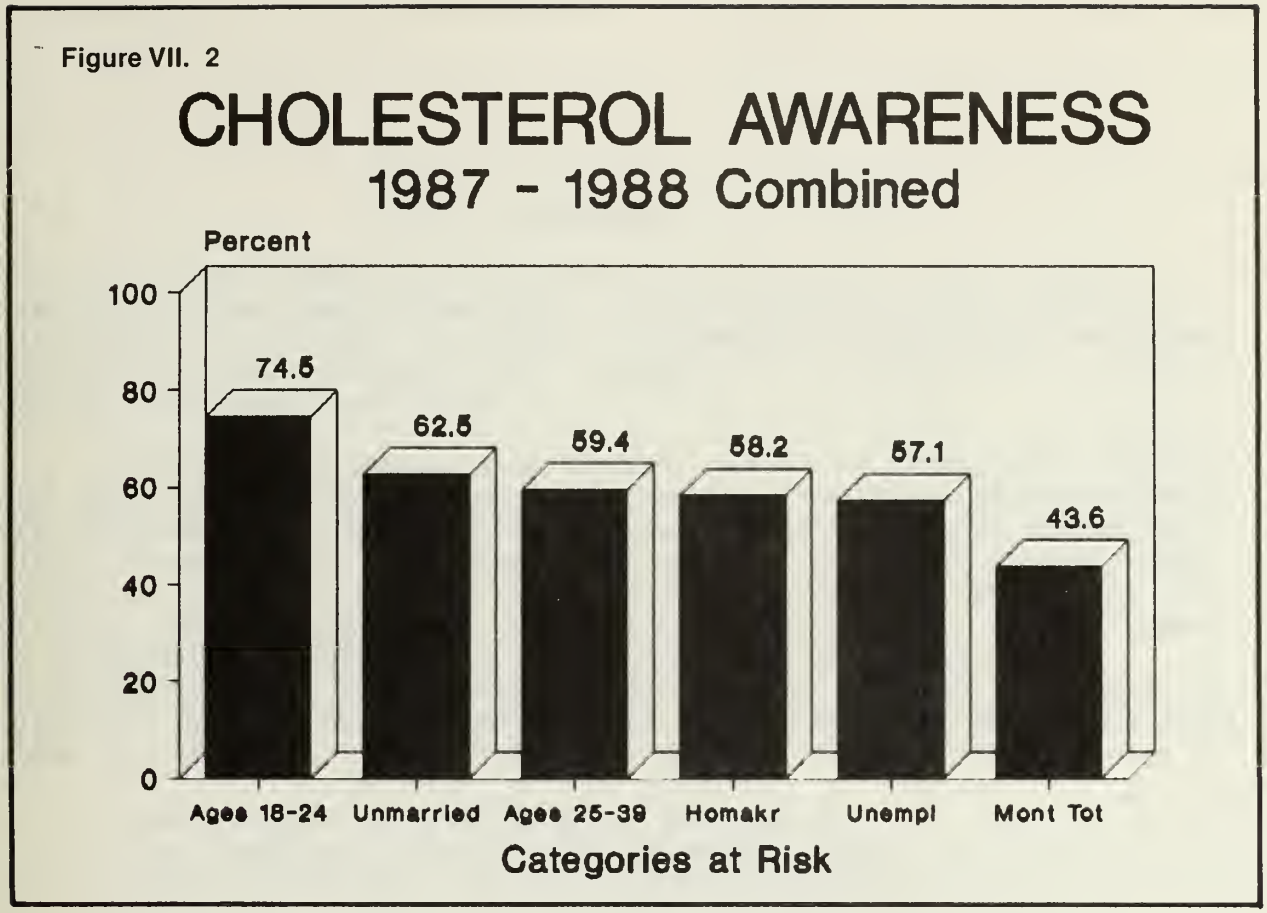
These latter two changes point to increased awareness about cholesterol by Montanans and this increase is statistically significant. However, a significant number (about 44%) of adult Montanans have never been checked for the risk of elevated blood cholesterol.

Categories of Montanans At Potentially Higher Risk

Information in Appendix B displays the proportion of adult Montanans who have never been checked for cholesterol in terms of gender, age, race, education, income, marital status, and employment status. Categories at higher potential risk are shown in Figure VII.2.

Four categories appear to be at highest potential risk for cholesterol awareness: younger adults (18-25 years of age), mature adults in the time of life when careers and families are being established (ages 25-39), those who are not married, and those who are homemakers and students. The degree of potential risk among the youngest group is high - approximately 75% had not had their cholesterol levels checked. Those who were not married also show a relatively high potential risk with approximately 63 percent indicating they had not been checked. The combination of being young, not married, and in the status of students would indicate that cholesterol screening is not prevalent among the young adult group in Montana.

Figure VII. 2


CHOLESTEROL AWARENESS
1987 - 1988 Combined
Percent
100
80
60
40
20
0
74.5
62.5
59.4
58.2
57.1
43.6
Ages 18-24
Unmarried
Ages 25-39
Homakr
Unempl
Mont Tot
Categories at Risk

VIII. MAMMOGRAMS

It is estimated that one woman in ten will have breast cancer at some time in her life. One fourth of these will be diagnosed before the age of 50. Although the mortality rate has not changed significantly in 50 years, the incidence of breast cancer increases each year.

Prognosis for women with breast cancer in terms of survival and quality of life is remarkably better for those whose cancers are diagnosed in the earliest stages. Unfortunately, there is little known about the primary prevention of breast cancer, and there have been no recent, significant advances in treatment of breast cancer. Since all women, by virtue of their gender, must be considered at high risk, prevention focuses upon early identification of the disease. The National Cancer Institute suggests that mortality from breast cancer can be reduced by more than 16% if women:

- participate in mammographic screening
- have regular clinical breast exams; and
- practice monthly breast self-examination.

The American Cancer Society and the National Cancer Institute recommend that women 50 years and older have an annual screening mammogram.

Two Years of Data

In this section data are presented on adult Montana women and mammograms. Data have been collected for the years 1987 and 1988. (See Appendix B, Tables 22 and 23, and Figure VIII.1.)

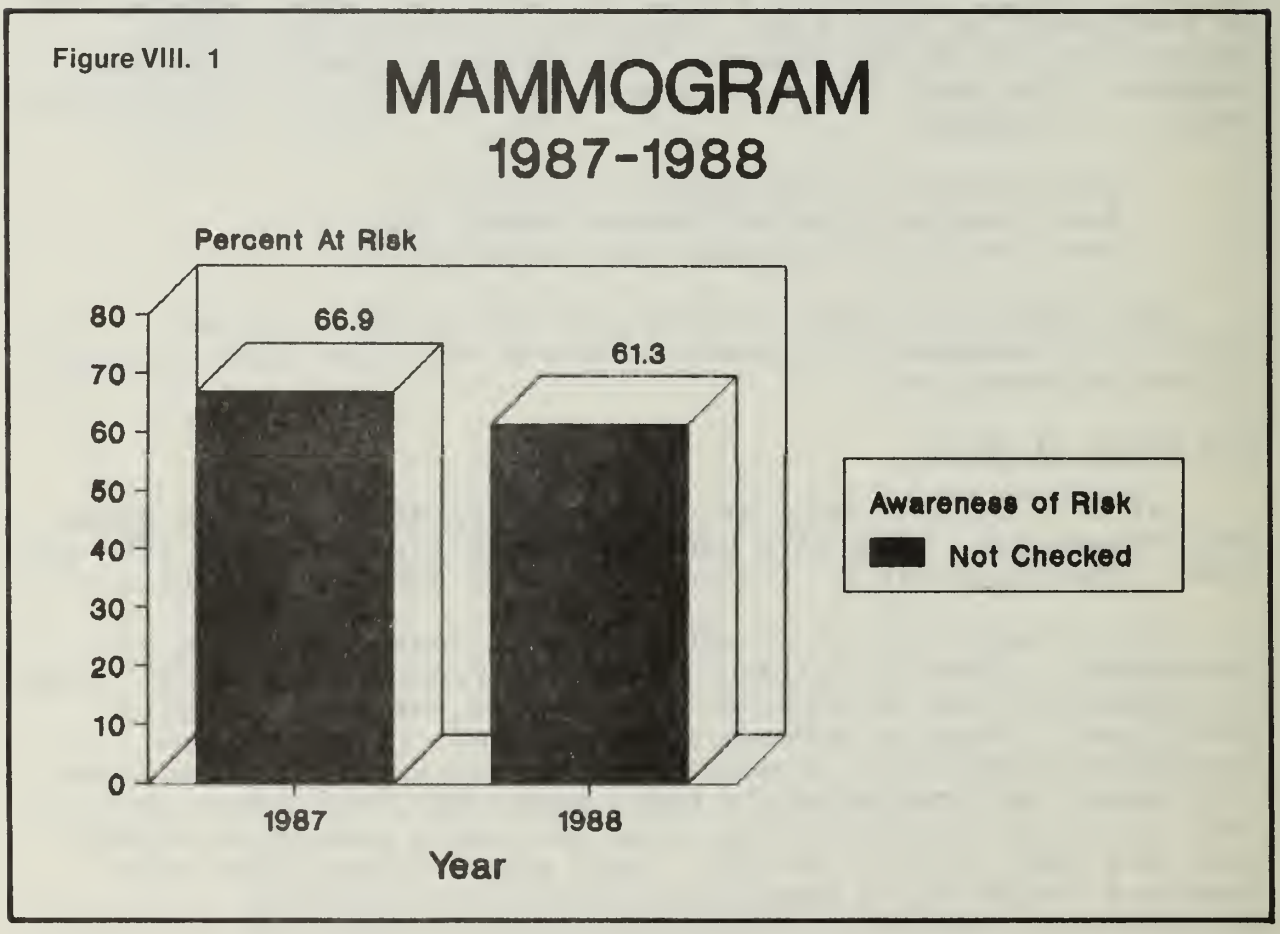
More than 9 out of 10 adult Montana women had heard of mammograms. There is evidence that the proportion who had heard of mammograms was increasing, as shown in the statistically significant increase between 1987 and 1988. Although the overwhelming majority of Montana women had heard of mammograms, only about 36% have actually had a mammogram. For women age 40 - 59, there was a increase in those who had a mammogram between 1987 and 1988 (54.5 to 58.2%). More women 60 and older also reported having had a mammogram (from 45.1% to 49.5%) representing a positive trend among Montana women for obtaining mammograms.

Over half of Montana women who had mammograms had them within the past year (about 57%), as shown in Table 23.

Categories of Montana Women and Mammograms

Of women between the ages 40-59, 44.5% reported having had mammograms during 1987, and that proportion had increased to 57.2% in 1988. For the years 1987 and 1988 combined, household income appears to be a factor in women age 40-59 having mammograms. Of women who have not had mammograms, 53% reported incomes of less than $20,000, while 69.2% of those who had mammograms reported incomes of greater than $20,000. Of women between the ages of 40 and 59 who reported having had a mammogram, 64.7% were employed outside the home and 28.4% were homemakers or students.

Figure VIII. 1



IX. ROUTINE MEDICAL CHECKUPS

Two Years of Data

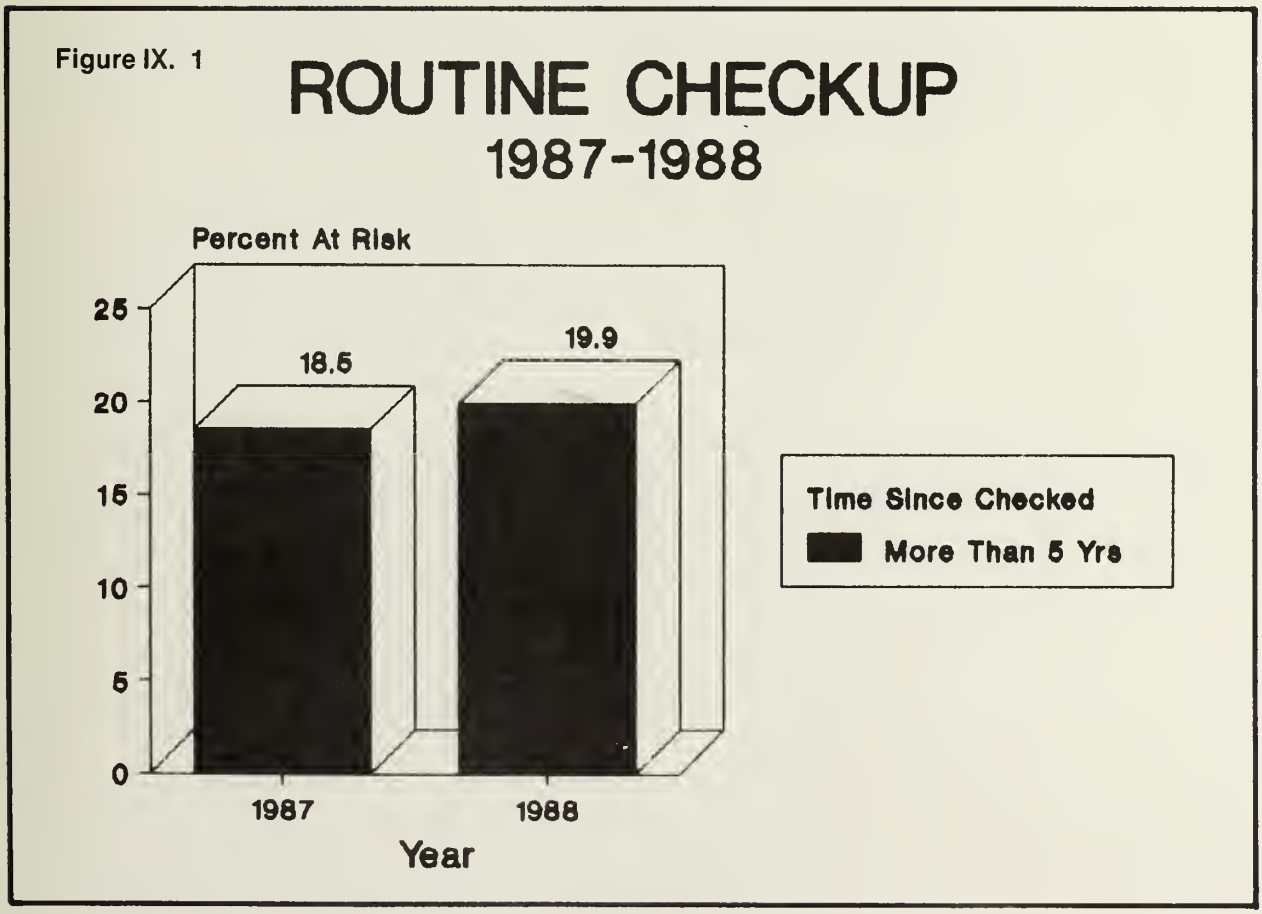
Routine medical checkups are recognized as an effective method of prevention for health risks. About 6 out of 10 adult Montanans had a routine medical checkup in the years 1987 and 1988. (See Appendix B, Table 24.) Slightly less than one-fifth had a checkup more than five years ago. There was no change in the rate of routine checkups between 1987 and 1988 (see Figure IX.1).

Categories of Montanans at Risk

The proportions of various categories of adult Montanans who had not had a routine medical checkup within the past five years are shown in Appendix B, Table 25. Those who were at increased risk are shown in Figure IX.2

Males, young adults in the 25-39 age group, and the employed are higher at risk for not having timely medical checkups.

Figure IX. 1



APPENDICES

A.....A Note on Method

B.....Tables

C.....References

APPENDIX A. A NOTE ON METHOD

In order to make comparisons among states participating in the Behavioral Risk Factor Surveillance System, a standardized core questionnaire and interview protocol are used. They are developed by the Centers for Disease Control with input from the participating states. The core questions have been selected from national surveys such as the National Health and Nutrition Examination Survey, and the National Health Interview Survey. States with interests in subject areas not adequately covered by the core questionnaire may add questions to the survey. In 1987 Montana first added state specific questions relating to AIDS knowledge and attitudes. Montana has asked questions about drinking and driving and seatbelt laws since 1984.

Standard procedures are used to identify an adult to be interviewed from all the adults living at the selected household. Calls to the selected phone number are made according to a standard procedure with regard to time of day and number of callbacks. Interviews are conducted during one week of each month throughout the year. The schedule for interviewing is the same nationwide. In Montana, part-time employees of a research consulting firm conduct the interviews.

The behavioral risk factor data described and analyzed in this report were gathered through telephone surveys conducted in Montana. Respondents in the surveys were adult Montanans over 18 who were civilians and who were not institutionalized.

Because this study is not designed to ensure accurate sampling of subgroups in the Montana population such as American Indians, the data relating to nonwhites in this study may not be as reliable as that relating to other categories because the American Indian households with telephones may not be representative of the general population of American Indian households in the State.

The fact that the data shown for the adult population as a whole are quite comparable from one year to the next, throughout the five-year period, gives a great deal of assurance that they should be trusted and used with confidence.

APPENDIX B: TABLES

Table 1. Selected Risk Behavior Categories and Percent of Risk Behavior in Background: 1984-1988. State of Montana. (N=5,611)

Background Characteristics	Seatbelt Use (31.6%)	Hyper-tension (19.3%)	Obesity (21.0%)	Smoking (24.2%)	Acute Drinking (19.6%)
SEX					
Female	29.4	20.3	19.9	24.0	11.3
Male	34.6	18.0	22.6	24.3	31.5
AGE					
18-24	35.4	6.7	9.0	19.3	37.3
25 - 39	28.9	8.4	16.1	26.5	27.3
40 - 59	33.7	21.9	27.3	28.7	16.4
60 and Over	31.4	35.7	25.9	18.2	6.2
RACE					
Nonwhite	32.4	12.2	19.9	34.5	21.2
White	31.5	19.5	21.1	23.9	19.5
MARITAL STATUS					
Married	30.1	18.2	22.1	23.6	17.4
Divorced	31.7	17.4	17.4	39.1	25.6
Widowed	33.3	36.5	26.8	18.4	3.3
Separated	31.1	10.8	18.8	28.2	25.2
Never Married	37.0	12.6	14.3	17.9	38.9
Unmarried Couple	34.7	12.2	10.9	49.0	46.9
Not Married	34.1	21.4	19.2	24.9	23.5
Married	30.1	18.2	22.1	23.6	17.4
Not Div/Sep	31.6	19.7	21.5	22.4	18.8
Divorced/Separated	31.6	16.3	17.6	37.3	25.6
Not Widowed	31.3	17.1	20.3	24.8	21.7
Widowed	33.3	36.5	26.8	18.4	3.3
INCOME					
LT $10,000	38.4	23.2	23.7	28.6	18.0
10,000-14,999	33.5	21.7	21.8	24.6	17.9
15,000-19,999	32.7	18.8	19.9	26.6	20.1
20,000-24,999	30.0	14.7	19.4	23.2	22.2
25,000-34,999	26.2	17.5	21.2	22.3	21.2
35,000-49,999	23.7	15.7	17.6	20.7	22.9
50,000 or More	26.4	15.4	20.8	18.7	24.2

Table 1 continued next page

Table 1. continued

Background Characteristics	Seatbelt Use (31.6%)	Hyper-tension (19.3%)	Obesity (21.0%)	Smoking (24.2%)	Acute Drinking (19.6%)
EDUCATION					
LT HS or GED	40.2	28.0	30.1	26.6	13.6
HS Graduate	35.1	19.4	20.9	29.1	21.0
Some Coll or Technical	30.4	17.0	19.7	24.2	21.5
Coll Grad or More	21.5	16.3	17.1	14.7	18.9
EMPLOYMENT					
Employed	31.9	14.4	19.9	25.5	25.7
Unemployed	41.1	13.9	22.1	39.4	26.1
Homemaker/Student	28.2	12.8	18.4	22.8	15.5
Retired	31.1	37.7	25.5	18.5	5.4
Not Working	31.1	26.0	22.5	22.2	11.3
Working	31.9	14.4	19.9	25.5	25.7
Not Retired	31.7	14.1	19.7	25.7	23.7
Retired	31.1	37.7	25.5	18.5	5.4

Note: Selected Risk Behavior Categories are:
Seatbelt Use = Seldom/Never Use;
Hypertension = Told Have High Blood Pressure;
Obesity = Greater than 120% of Weight to Height Percent of Median;
Smoking = Current Smokers;
Acute Drinking = 5+ drinks on at least one occasion

Source: Centers for Disease Control. Behavioral Risk Factor Surveillance System. Atlanta, Georgia.

Table 2. Selected Risk Behavior Categories and Deviation from State Risk Behavior Percentages in Terms of Background Characteristics: 1984-1988. State of Montana. (N=5,611) (Note: a "+" signifies higher and a "-" signifies lower than State Five-Year Risk Percent.)

Background Characteristics	Seatbelt Use (31.6%)	Hyper-tension (19.3%)	Obesity (21.0%)	Smoking (24.2%)	Acute Drinking (19.6%)
SEX					
Female	-2.2	+1.0	-1.1	-0.2	-8.3
Male	+3.0	-1.3	+1.6	+0.1	+11.9
AGE					
18 - 24	+3.8	-12.6	-12.0	-4.9	+17.7
25 - 39	-2.7	-10.9	-4.9	+2.3	+7.7
40 - 59	+2.1	+2.6	+6.3	+4.5	-3.2
60 and Over	-0.2	+16.4	+4.9	-6.0	-13.4
RACE					
Nonwhite	+0.8	-7.1	-1.1	+10.3	+1.6
White	-0.1	+0.2	+0.1	-0.3	-0.1
MARITAL STATUS					
Married	-1.5	-1.1	+1.1	-0.6	-2.2
Divorced	+0.1	-1.9	-3.6	+14.9	+6.0
Widowed	+1.7	+17.2	+5.8	-5.8	-16.3
Separated	-0.5	-8.5	-2.2	+4.0	+5.6
Never Married	+5.4	-6.7	-6.7	-6.3	+19.3
Unmarried Couple	+3.1	-7.1	-10.1	+24.8	+27.3
Not Married	+2.5	+2.1	-1.8	+0.7	+3.9
Married	-1.5	-1.1	+1.1	-0.6	-2.2
Not Div/Sep	0.0	+0.4	+0.5	-1.8	-0.8
Divorced/Separated	0.0	-3.0	-3.4	+13.1	+6.0
Not Widowed	-0.3	-2.2	-0.7	-0.6	+2.1
Widowed	+1.7	+17.2	+5.8	-5.8	-16.3
INCOME					
LT $10,000	+6.8	+3.9	+2.7	+4.4	-1.6
10,000-14,999	+1.9	+2.4	+0.8	+0.4	-1.7
15,000-19,999	+1.1	-0.5	-1.1	+2.4	+0.5
20,000-24,999	-1.6	-4.6	-1.6	-1.0	+2.6
25,000-34,999	-5.4	-1.8	+0.2	-1.9	+1.6
35,000-49,999	-7.9	-3.6	-3.4	-3.5	+3.3
50,000 or More	-5.2	-3.9	-0.2	-5.5	+4.6

Table 2 continued next page

Table 2. continued

Background Characteristics	Seatbelt Use (31,6%)	Hyper-tension (19.3%)	Obesity (21.0%)	Smoking (24.2%)	Acute Drinking (19.6%)
EDUCATION					
LT HS or GED	+8.6	+8.7	+9.1	+2.4	-6.0
HS Graduate	+3.5	+0.1	-0.1	+4.9	+1.4
Some Coll or Technical	-1.2	-2.3	-1.3	0.0	+1.9
Coll Grad or More	-10.1	-3.0	-3.9	-9.5	-0.7
EMPLOYMENT					
Employed	+0.3	-4.9	-1.1	+1.3	+6.1
Unemployed	+9.5	-5.4	+1.1	+15.2	+6.5
Homemaker/Student	-3.4	-6.5	-2.6	-1.4	-4.1
Retired	-0.5	+18.4	+4.5	-5.7	-14.2
Not Working	-0.5	+6.7	+1.5	-2.0	-8.3
Working	+0.3	-4.9	-1.1	+1.3	+5.8
Not Retired	+0.1	-5.2	-1.3	+1.5	+4.1
Retired	-0.5	+18.4	+4.5	-5.7	-14.2

Note: Selected Risk Behavior Categories are:
Seatbelt Use = Seldom/Never Use;
Hypertension = Told Have High Blood Pressure;
Obesity = Greater than 120% of Weight to Height Percent of Median;
Smoking = Current Smokers;
Acute Drinking = 5+ drinks on at least one occasion
Source: Centers for Disease Control. Behavioral Risk Factor Surveillance System. Atlanta, Georgia.

Table 3. Rank Order of Five Highest Risk and Five Lowest Risk Categories of Background Characteristics in Five Behavioral Risk Areas, Combined Years 1984-1988. State of Montana. (N=5,611)

SEATBELT USE
(Five-Year Risk Percent = 31.6)

Five Highest Risk Categories			Five Lowest Risk Categories		
Rank	Category	% At Risk	Rank	Category	% At Risk
1	Unemployed	41.1%	1	Coll. Grad or High.	21.5%
2	LT HS or GED	40.2	2	$35,000-49,999	23.7
3	LT $10,00	38.4	3	$25,000-34,999	26.2
4	Never Married	37.0	4	$50,000 or More	26.4
5	18-24 Years Old	35.4	5	Homemaker/Student	28.2

HYPERTENSION
(Five-Year Risk Percent = 19.3)

Five Highest Risk Categories			Five Lowest Risk Categories		
Rank	Category	% AT Risk	Rank	Category	% AT Risk
1	Retired	37.7%	1	18-24 Years Old	6.7%
2	Widowed	36.5	2	25-39 Years Old	8.4
3	60 Years And Over	35.7	3	Separated	10.8
4	LT HS or GED	28.0	4.5	Unmarried Couple	12.2
5	Not Working	26.0	4.5	Nonwhite	12.2

OBESITY
(Five Year Risk Percent = 21.0)

Five Highest Risk Categories			Five Lowest Risk Categories		
Rank	Category	% AT Risk	Rank	Category	% AT Risk
1	LT HS or GED	30.1%	1	18-24 Years Old	9.0%
2	40-59 Years Old	27.3	2	Unmarried Couple	10.1
3	Widowed	26.8	3	Never Married	14.3
4	60 Years and Over	25.9	4	25-39 Years Old	16.1
5	Retired	25.5	5	Coll. Grad or Higher	17.1

Table 3 continued on next page

Table 3. continued

SMOKING
(Five-Year Risk Percent = 24.2%)

Five Highest Risk Categories			Five Lowest Risk Categories		
Rank	Category	% At Risk	Rank	Category	% AT Risk
1	Unmarried Couple	49.0%	1	Coll. Grad or Higher	14.7%
2	Unemployed	39.4	2	60 Years and Over	18.2
3	Divorced	39.1	3	Widowed	18.4
4	Divorced/Separated	37.3	4	Retired	18.5
5	Nonwhite	34.5	5	$50,000 or More	18.7

ACUTE DRINKING
(Five-Year Risk Percent = 19.6)

Five Highest Risk Categories			Five Lowest Risk Categories		
Rank	Category	% At Risk	Rank	Category	% At Risk
1	Unmarried Couple	46.9%	1	Widowed	3.3%
2	Never Married	38.9	2	Retired	5.4
3	18-24 Years Old	37.3	3	60 Years and Over	6.2
4	Male	31.5	4.5	Female	11.3
5	25-39 Years Old	27.3	4.5	Not Working	11.3

Note: Selected Risk Behavior Categories are:
Seatbelt Use = Seldom/Never Use;
Hypertension = Told Have High Blood Pressure;
Obesity = Greater than 120% of Weight to Height Percent of Median;
Smoking = Current Smokers;
Acute Drinking = 5+ Drinks on at Least One Occasion
Source: Centers for Disease Control. Behavioral Risk Factor Surveillance Systems. Atlanta, Georgia.

Table 4. Percent At Risk for Seatbelt Use (Seldom/Never), Years 1984, 1985, 1986, 1987, 1988 (Selected Categories).

(% At Risk)=	1984 (46.4)	1985 (42.6)	1986 (33.7)	1987 (27.0)	1988 (12.1)	Total (31.5)
			GENDER			
Female	42.7	39.3	32.9	25.2	9.5	29.4
Male	52.7*	47.3*	34.8*	29.7*	15.4*	34.6*
			AGE			
18-24	43.7	50.7*	39.2*	25.6	12.9*	35.4*
25-39	45.4	37.3	29.6	23.9	11.0	28.9
40-59	52.4*	45.7*	34.7*	29.8*	12.5*	33.7*
60+	43.4	44.0*	35.9*	28.6*	12.8*	31.4
			RACE			
Nonwhite	47.1*	41.7	28.6	38.7*	13.9*	32.4*
White	46.5*	42.7*	33.8*	26.7	12.0	31.5
			EDUCATION			
LT HS/GED	55.7*	53.2*	39.7*	37.9*	15.0*	40.2*
HS/GED	54.4*	47.5*	39.9*	29.2*	12.3*	35.1*
Coll/Tech	42.8	41.4	31.9	26.6	13.2	30.4
Coll Grad	33.9	29.8	21.6	16.4	8.0	21.5
			HOUSEHOLD INCOME			
LT $10,000	53.1*	55.2*	43.9*	34.2*	14.5*	38.4*
10-14,999	55.7*	44.7*	28.4	26.4	14.4*	33.5*
15-19,999	45.5	44.2*	35.7*	29.3*	10.4	32.7*
20-24,999	41.7	34.8	33.5	28.8*	12.9*	30.0
25-34,999	42.5	36.0	26.2	20.7	10.4	26.2
35,000+	37.8	37.8	25.1	20.0	9.5	24.5
			MARITAL STATUS			
Married	47.2*	39.3	31.3	25.4	10.9	30.1
Div/Sep	50.0*	44.1*	32.2	28.4*	13.5*	31.6*
Widowed	43.4	46.1*	39.1*	30.6*	13.2*	33.3*
Not Married	42.6	53.9*	42.0*	29.5*	15.7*	36.9*
			EMPLOYMENT STATUS			
Employed	48.1*	41.6	33.3	27.5*	13.2*	31.9*
Unemployed	53.1*	56.5*	39.5*	33.3*	20.0	41.1
Homemkr/Stud.	43.5	39.8	32.0	19.6	6.4	28.2
Retired	43.7	44.1*	34.7*	29.5*	11.2*	31.1

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 5. Five Highest At Risk Categories for Seatbelt Use (Seldom/Never), Years 1984, 1985, 1986, 1987, 1988 and Five-Years Combined.

Year	State % At Risk	Category	Category % At Risk	Rank
1984	46.4	LT HS/GED	55.7	1.5
		$10,000-14,999	55.7	1.5
		HS/GED	54.4	3
		LT $10,000	53.1	4.5
		Unemployed	53.1	4.5
1985	42.6	Unemployed	56.5	1
		LT $10,000	55.2	2
		Not Married	53.9	3
		LT HS/GED	53.2	4
		LT 25 Years	50.7	5
1986	33.7	LT $10,000	43.9	1
		Not Married	42.0	2
		HS/GED	39.9	3
		LT HS/GED	39.7	4
		Unemployed	39.5	5
1987	27.0	Nonwhite	38.7	1
		LT $10,000	34.2	2
		Unemployed	33.3	3
		Widowed	30.6	4
		40-59 Years	29.8	5
1988	12.1	Unemployed	20.0	1
		Not Married	15.7	2
		Male	15.4	3
		LT HS/GED	15.0	4
		LT $10,000	14.5	5
Five Years Combined	31.5	Unemployed	41.1	1
		LT HS/GED	40.2	2
		LT $10,000	38.4	3
		Not Married	36.9	4
		18-25 Years	35.4	5

Number of Times in Top Five Highest Risk Categories: 1984-1988

LT $10,000	5 times
Unemployed	5 times
Not Married	3 times
LT HS/GED	3 times
HS/GED	2 times
All Other	1 time

Table 6 Percent At Risk for Sedentary Lifestyle (Participates in No Activities): Years 1984 Through 1988 (Selected Categories).

(% At Risk)=	1984 (27.7)	1985 (14.9)	1986 (14.3)	1987 (16.4)	1988 (16.7)	Total (17.4)
			GENDER			
Female	27.4	14.1	14.3	16.9*	17.7*	17.6*
Male	28.1*	16.1*	14.3	15.8	15.4	17.2
			AGE			
18-24	18.4	10.6	8.8	5.1	5.0	9.6
25-39	21.8	11.1	9.0	7.5	8.3	11.1
40-59	29.2*	17.6*	12.3	19.7*	17.0*	18.4*
60+	38.6*	29.5*	25.2*	26.9*	29.9*	27.5*
			RACE			
Nonwhite	35.3*	13.9	10.7	19.4*	11.1	16.2
White	27.2	15.0*	14.3	16.3	16.9*	17.4
			EDUCATION			
LT HS/GED	35.7*	23.1*	27.5*	29.0*	29.3*	28.3*
HS/GED	35.9*	16.9*	15.2*	17.6*	19.2*	19.9*
Coll/Tech	24.1	13.7	9.8	14.2	13.8	14.9
Coll Grad	13.2	8.1	8.2	8.8	8.4	9.1
			HOUSEHOLD INCOME			
LT $10,000	32.4*	19.5*	21.3*	27.2*	30.3*	26.1*
10-14,999	26.4	19.0*	17.4*	12.9	19.4*	18.7*
15-19,999	22.0	17.4*	11.4	12.9	16.0	15.8
20-24,999	25.2	9.8	11.6	7.6	10.1	12.5
25-34,999	29.1*	8.5	8.2	14.5	11.4	13.4
35,000+	23.5	10.3	7.8	12.4	8.6	11.6
			MARITAL STATUS			
Married	29.1*	14.1	14.1	16.2	14.7	17.1
Div/Sep	25.3	16.9*	11.5	8.5	15.4	14.7
Widowed	30.3*	21.1*	25.2*	32.0*	37.9*	29.4*
Not Married	19.1	12.1	6.7	10.4	7.1	10.8
			EMPLOYMENT STATUS			
Employed	23.3	13.2	12.1	13.3	12.3	14.2
Unemployed	20.4	12.9	15.8*	11.9	21.8*	16.7
Homemkr/Stud.	26.5	13.1	9.0	9.5	9.9	13.5
Retired	41.1*	22.5*	23.3*	27.6*	30.8*	28.3*

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 7 Five Highest At Risk Categories for Sedentary Lifestyle (Particpates in No Activities): Years 1984, 1985, 1986, 1987, 1988, and Five Years Combined.

Year	State % At Risk	Category	Category % At Risk	Rank
1984	27.7	Retired	41.1	1
		60+ Years	38.6	2
		HS/GED	35.9	3
		LT HS/GED	35.7	4
		Nonwhite	35.3	5
1985	14.9	60+ Years	29.5	1
		LT HS/GED	23.1	2
		Retired	22.5	3
		Widowed	21.1	4
		LT $10,000	19.5	5
1986	14.3	LT HS/GED	27.5	1
		60+ Years	25.2	2.5
		Widowed	25.2	2.5
		Retired	23.3	4
		LT $10,000	21.3	5
1987	16.4	Widowed	32.0	1
		LT HS/GED	29.0	2
		Retired	27.6	3
		LT $10,000	27.2	4
		60+ Years	26.9	5
1988	16.7	Widowed	37.9	1
		Retired	30.8	2
		LT $10,000	30.3	3
		60+ Years	29.9	4
		LT HS/GED	29.3	5
Five Years Combined	17.4	Widowed	29.4	1
		LT HS/GED	28.3	2.5
		Retired	28.3	2.5
		60+ Years	27.5	4
		LT $10,000	26.1	5

Number of Times in Top Five Highest Risk Categories: 1984-1988

Retired	5 times
60+ Years	5 times
LT HS/GED	5 times
Widowed	4 times
LT $10,000	4 times
HS/GED	1 time
Nonwhite	1 time

Table 8 Percent At Risk for Smoking (Current Smokers) Years 1984, 1985, 1986, 1987, 1988 (Selected Categories).

(% At Risk)=	1984 (29.7)	1985 (26.3)	1986 (23.7)	1987 (24.4)	1988 (21.6)	Total (24.9)
			GENDER			
Female	29.4	26.0	23.0	24.8*	21.1	24.7
Male	30.0*	26.9*	24.5*	23.9	22.2*	25.1*
			AGE			
18-24	23.3	18.3	24.5*	16.2	18.8	20.0
25-39	31.9*	30.1*	24.6*	28.4*	21.5	27.2*
40-59	33.9*	30.8*	26.0*	32.1*	27.3*	29.6*
60+	24.9	20.5	19.7	15.9	17.2	19.0
			RACE			
Nonwhite	58.8*	41.7*	21.6	41.9*	25.0*	35.8*
White	29.3	25.9	23.7	23.9	21.5	24.6
			EDUCATION			
LT HS/GED	34.8*	31.7*	24.3*	21.3	26.5*	27.3*
HS/GED	35.3*	29.9*	30.1*	29.9*	25.8*	29.8*
Coll/Tech	28.8	26.3	24.0*	26.9*	20.1	25.1*
Coll Grad	19.6	18.0	13.1	14.5	13.3	15.5
			HOUSEHOLD INCOME			
LT $10,000	30.4*	33.3*	30.6*	31.3*	27.1*	30.4*
10-14,999	30.7*	26.8*	21.3	27.0*	20.0	25.1*
15-19,999	36.4*	29.0*	22.1	25.2*	22.2*	26.8*
20-24,999	28.7	21.2	23.2	23.5	23.0*	23.8
25-34,999	28.4	26.0	20.2	20.1	19.4	22.5
35,000+	26.9	23.8	21.1	20.0	15.8	20.9
			MARITAL STATUS			
Married	31.3*	24.4	23.9*	23.4	19.3	24.2
Div/Sep	43.4*	44.9*	32.8*	37.6*	37.2*	38.9*
Widowed	23.7	19.5	19.2	16.3	19.3	19.2
Not Married	15.7	24.2	19.3	24.9*	19.3	21.1
			EMPLOYMENT STATUS			
Employed	32.9*	25.5	24.4*	27.8*	22.8*	26.2*
Unemployed	36.7*	54.8*	39.5*	38.1*	27.3*	39.8*
Homemkr/Stud.	24.7	26.1	23.6	21.8	21.5	23.5
Retired	24.4	21.1	19.5	17.0	17.4	19.4

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 9 Percent At Risk for Use of Smokeless Tobacco (Current User) Years 1987 and 1988 (Selected Categories).

(% At Risk)=	1987 (4.2)	1988 (5.1)	Total (4.7)
	GENDER		
Female	0.1	0.1	0.0
Male	10.2*	11.7*	11.0*
	AGE		
18-24	10.3*	12.9*	11.5*
25-39	4.2	5.4	4.8
40-59	3.2	3.0	3.1
60+	3.1	4.4	3.7
	RACE		
Nonwhite	6.5*	2.8	4.5
White	4.1	5.2*	4.7
	EDUCATION		
LT HS/GED	1.8	4.1	2.8
HS/GED	5.3*	5.3*	5.3*
Coll/Tech	5.4*	6.9*	6.1*
Coll Grad	2.3	2.7	2.5
	HOUSEHOLD INCOME		
LT $10,000	4.1	4.1	4.1
10-14,999	3.9	7.5*	5.6*
15-19,999	5.4*	6.9*	6.2*
20-24,999	3.0	5.8*	4.4
25-34,999	6.7*	4.5	5.5*
35,000+	4.3*	3.2	3.7
	MARITAL STATUS		
Married	4.7*	5.1	4.9*
Div/Sep	2.1	2.6	2.4
Widowed	1.4	2.8	2.1
Not Married	6.4*	10.0*	8.0*
	EMPLOYMENT STATUS		
Employed	5.3*	5.7*	5.5*
Unemployed	7.1*	5.5*	6.2*
Homemkr/Stud.	1.1	4.7	2.8
Retired	3.2	4.0	3.6

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 10 Percent At Risk for Use of Smokeless Tobacco (Current User): Years 1987 and 1988 (Selected Categories).

(% At Risk)=	1987 (4.2)	1988 (5.1)	Total (4.7)
		GENDER	
Female	0.1	0.1	0.0
Male	10.2*	11.7*	11.0*
		AGE	
18-24	10.3*	12.9*	11.5*
25-39	4.2	5.4	4.8
40-59	3.2	3.0	3.1
60+	3.1	4.4	3.7
		RACE	
Nonwhite	6.5*	2.8	4.5
White	4.1	5.2*	4.7
		EDUCATION	
LT HS/GED	1.8	4.1	2.8
HS/GED	5.3*	5.3*	5.3*
Coll/Tech	5.4*	6.9*	6.1*
Coll Grad	2.3	2.7	2.5
		HOUSEHOLD INCOME	
LT $10,000	4.1	4.1	4.1
10-14,999	3.9	7.5*	5.6*
15-19,999	5.4*	6.9*	6.2*
20-24,999	3.0	5.8*	4.4
25-34,999	6.7*	4.5	5.5*
35,000+	4.3*	3.2	3.7
		MARITAL STATUS	
Married	4.7*	5.1	4.9*
Div/Sep	2.1	2.6	2.4
Widowed	1.4	2.8	2.1
Not Married	6.4*	10.0*	8.0*
		EMPLOYMENT STATUS	
Employed	5.3*	5.7*	5.5*
Unemployed	7.1*	5.5*	6.2*
Homemkr/Stud.	1.1	4.7	2.8
Retired	3.2	4.0	3.6

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 11 Risk Behavior for Drinking for the Years 1984, 1985, 1986, 1987, 1988. State of Montana. (Percentages)

Risk Status	1984 (N=858)	1985 (N=1188)	1986 (N=1187)	1987 (N=1188)	1988 (N=1186)	Total (N=5607)
A. Acute Drinking: Five-Plus Drinks On At Least One Occasion						
At Risk	22.6	20.6	18.2	19.1	18.2	19.6
B. Drinking & Driving: Driven At Least Once When Had Too Much To Drink						
At Risk	5.7	4.8	4.9	4.6	4.3	4.8
C. Chronic Drinking: Have Sixty-Plus Drinks Per Month						
At Risk	5.2	6.0	3.8	4.0	4.2	4.6

A. Acute Drinking: Gamma=-.06; Chi Square=.065 (Not Significant)
B. Drinking & Driving: Gamma=-.06; Chi Square=.660 (Not Signi.)
C. Chronic Drinking: Gamma=-.09; Chi Square=.055 (Not Signi.)

Table 12 Percent At Risk for Acute Drinking (Five-Plus Drinks on One Occasion) Years 1984 Through 1988 (Selected Categories).

(% At Risk)=	1984 (22.6)	1985 (20.6)	1986 (18.2)	1987 (19.1)	1988 (18.2)	Total (19.6)
			GENDER			
Female	12.1	11.0	10.9	12.2	10.3	11.3
Male	40.4*	34.2*	28.4*	29.2*	28.6*	31.5*
			AGE			
18-24	37.3*	33.1*	43.6*	36.8*	37.6*	37.3*
25-39	29.5*	27.9*	25.7*	26.1*	27.5*	27.3
40-59	19.0	17.1	15.3	16.9	14.5	16.4
60+	8.7	6.5	4.5	7.4	5.0	6.2
			RACE			
Nonwhite	25.0*	20.0	25.0*	16.1	22.2*	21.2*
White	22.6	20.6	18.1	19.2*	18.0	19.5
			EDUCATION			
LT HS/GED	14.2	18.5	10.1	16.0	8.8	13.6
HS/GED	23.9*	22.8*	19.7*	21.8*	18.0	21.0*
Coll/Tech	24.3*	21.8*	21.2*	18.0	22.9*	21.5*
Coll Grad	23.8*	17.7	18.3*	17.9	18.3*	18.9
			HOUSEHOLD INCOME			
LT $10,000	24.5*	19.7	16.7	17.7	14.1	18.0
10-14,999	14.3	16.9	19.6*	16.9	21.9*	17.9
15-19,999	22.1	22.5*	19.3*	17.2	19.4*	20.1*
20-24,999	30.7*	25.0*	16.1	25.0*	16.7	22.2*
25-34,999	27.1*	20.5	21.9*	21.1*	17.4	21.2*
35,000+	23.5*	24.5*	21.8*	23.8*	23.1*	23.3*
			MARITAL STATUS			
Married	19.2	17.7	15.8	17.3	16.8	17.4
Div/Sep	30.9*	27.9*	27.3*	21.3*	23.2*	25.6*
Widowed	6.6	3.1	1.3	4.8	2.1	3.3
Not Married	45.6*	41.2*	40.8*	34.9*	36.4*	39.4*
			EMPLOYMENT STATUS			
Employed	29.7*	26.7*	23.7*	25.0*	24.6*	25.7*
Unemployed	36.7*	29.0*	18.4*	24.4*	20.0*	26.1*
Homemkr/Stud.	14.4	14.8	17.5	15.6	15.1	15.5
Retired	7.7	3.5	4.2	8.0	3.6	5.4

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 13 Percent At Risk for Acute Drinking (Five-Plus Drinks on One Occasion): Years 1984 - 1988 (Selected Categories).

(% At Risk)=	1984 (22.6)	1985 (20.6)	1986 (18.2)	1987 (19.1)	1988 (18.2)	Total (19.6)
			GENDER			
Female	12.1	11.0	10.9	12.2	10.3	11.3
Male	40.4*	34.2*	28.4*	29.2*	28.6*	31.5*
			AGE			
18-24	37.3*	33.1*	43.6*	36.8*	37.6*	37.3*
25-39	29.5*	27.9*	25.7*	26.1*	27.5*	27.3
40-59	19.0	17.1	15.3	16.9	14.5	16.4
60+	8.7	6.5	4.5	7.4	5.0	6.2
			RACE			
Nonwhite	25.0*	20.0	25.0*	16.1	22.2*	21.2*
White	22.6	20.6	18.1	19.2*	18.0	19.5
			EDUCATION			
LT HS/GED	14.2	18.5	10.1	16.0	8.8	13.6
HS/GED	23.9*	22.8*	19.7*	21.8*	18.0	21.0*
Coll/Tech	24.3*	21.8*	21.2*	18.0	22.9*	21.5*
Coll Grad	23.8*	17.7	18.3*	17.9	18.3*	18.9
			HOUSEHOLD INCOME			
LT $10,000	24.5*	19.7	16.7	17.7	14.1	18.0
10-14,999	14.3	16.9	19.6*	16.9	21.9*	17.9
15-19,999	22.1	22.5*	19.3*	17.2	19.4*	20.1*
20-24,999	30.7*	25.0*	16.1	25.0*	16.7	22.2*
25-34,999	27.1*	20.5	21.9*	21.1*	17.4	21.2*
35,000+	23.5*	24.5*	21.8*	23.8*	23.1*	23.3*
			MARITAL STATUS			
Married	19.2	17.7	15.8	17.3	16.8	17.4
Div/Sep	30.9*	27.9*	27.3*	21.3*	23.2*	25.6*
Widowed	6.6	3.1	1.3	4.8	2.1	3.3
Not Married	45.6*	41.2*	40.8*	34.9*	36.4*	39.4*
			EMPLOYMENT STATUS			
Employed	29.7*	26.7*	23.7*	25.0*	24.6*	25.7*
Unemployed	36.7*	29.0*	18.4*	24.4*	20.0*	26.1*
Homemkr/Stud.	14.4	14.8	17.5	15.6	15.1	15.5
Retired	7.7	3.5	4.2	8.0	3.6	5.4

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 14 Percent At Risk for Hypertension (Told Blood Pressure High): Years 1984, 1985, 1986, 1987, 1988 (Selected Categories).

(% At Risk)=	1984 (21.5)	1985 (19.2)	1986 (19.6)	1987 (16.8)	1988 (20.2)	Total (19.4)
			GENDER			
Female	22.9*	19.7*	19.4	17.8*	22.4*	20.3*
Male	19.1	18.5	19.9*	15.4	17.4	18.0
			AGE			
18-24	5.9	7.7	6.9	5.1	7.9	6.7
25-39	10.4	8.5	8.0	6.7	8.5	8.4
40-59	23.2*	23.9*	24.0*	15.2	23.4*	21.9*
60+	43.9*	37.2*	32.9*	33.5*	34.3*	35.7*
			RACE			
Nonwhite	29.4*	8.3	7.1	16.1	8.3	12.2
White	21.2	19.6*	19.8*	16.9*	20.6*	19.5*
			EDUCATION			
LT HS/GED	37.3*	28.0*	25.4*	28.4*	23.1*	28.0*
HS/GED	19.7	20.9*	21.0*	15.1	20.5*	19.4
Coll/Tech	22.6*	14.7	15.5	14.9	18.2	17.0
Coll Grad	12.7	15.6	17.5	14.6	20.2	16.3
			HOUSEHOLD INCOME			
LT $10,000	25.2*	21.3*	21.4*	24.3*	24.1*	23.2*
10-14,999	25.2*	24.0*	21.9*	17.4*	20.6*	21.7*
15-19,999	18.9	15.9	17.9	18.4*	22.9*	18.8
20-24,999	15.7	17.4	17.4	7.6	15.1	14.7
25-34,999	18.7	19.0	16.9	12.8	19.9*	17.5
35,000+	19.3	13.5	17.9	10.8	17.6	15.6
			MARITAL STATUS			
Married	21.6*	18.5	18.4	15.4	17.8	18.2
Div/Sep	18.1	15.4	14.8	10.0	23.1*	16.3
Widowed	42.1*	33.6*	35.1*	36.7*	37.2*	36.5*
Not Married	10.5	14.5	14.0	11.6	11.4	12.5
			EMPLOYMENT STATUS			
Employed	17.8	13.6	17.2	9.2	15.4	14.4
Unemployed	14.3	27.4*	10.5	9.5	3.7	13.9
Homemkr/Stud.	10.7	13.6	12.4	14.0	13.4	12.8
Retired	44.6*	39.2*	32.0*	35.7*	39.9*	37.7*

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 15 Change in Risk Behavior Percentages With Respect to Hypertension (Told Blood Pressure High): 1984 - 1988 (Selected Categories).

Category	Change in Percent 1984-1988	Top Five Categories of Change
Total Population	-1.3	
	GENDER	
Female	-0.5	
Male	-1.7	
	AGE	
18-24	+2.0	
25-39	-1.9	
40-59	+0.2	
60+	-9.6	4
	RACE	
Nonwhite	-21.1	1
White	-0.6	
	EDUCATION	
LT HS/GED	-14.2	2
HS/GED	+0.8	
Coll/Tech	-4.4	
Coll Grad	+7.5	5
	HOUSEHOLD INCOME	
LT $10,000	-1.1	
10-14,999	-4.6	
15-19,999	+4.0	
20-24,999	-0.6	
25-34,999	+1.2	
35,000+	-1.7	
	MARITAL STATUS	
Married	-3.8	
Div/Sep	+5.0	
Widowed	-4.9	
Not Married	+0.9	
	EMPLOYMENT STATUS	
Employed	-2.4	
Unemployed	-10.6	3
Homemkr/Student	+2.7	
Retired	-4.7	

Table 16 Risk Behavior for Being Overweight: Years 1984, 1985, 1986, 1987, 1988. State of Montana. (Percentages)

Risk Status	1984 (N=858)	1985 (N=1188)	1986 (N=1187)	1987 (N=1188)	1988 (N=1186)	Total (N=5607)
		A. Obesity: More Than 120% of Weight/Height Percent of Median				
At Risk	19.1	20.7	23.1	20.8	20.8	21.0
		B. Overweight Body/Mass Index: Females-GT 27.3; Males-GT 27.8				
At Risk	NA	NA	NA	15.5	19.0	17.0

A. Obesity: Gamma=.02; Chi Square=.309 (Not Significant)
B. Overweight: Gamma=-.05; Chi Square=.356 (Not Significant)

Table 17 Percent At Risk for Obesity (More Than 120% of Weight/Height Percent of Median) Years 1984, 1985, 1986, 1987, 1988 (Selected Categories).

(% At Risk)	1984 =(19.1)	1985 (20.7)	1986 (23.1)	1987 (20.8)	1988 (20.8)	Total (21.0)
			GENDER			
Female	16.7	20.1	22.1	19.6	20.1	19.9
Male	23.1*	21.4*	24.3*	22.5*	21.8*	22.6*
			AGE			
LT 25	10.0	8.5	7.8	8.8	9.9	9.0
25-39	15.9	15.0	17.8	15.5	16.6	16.1
40-59	28.2*	27.6*	27.7*	26.7*	26.7*	27.3*
60+	19.0	29.3*	29.7*	25.4*	23.8*	25.9*
			RACE			
Nonwhite	17.6	22.8*	18.5	19.4	19.4	19.9
White	19.3*	20.7	23.2*	20.9*	20.9*	21.1*
			EDUCATION			
LT HS/GED	22.0*	32.8*	38.5*	29.8*	22.1*	30.1*
HS/GED	17.8	19.0	22.4*	20.6	23.5*	20.9
Coll/Tech	22.9*	16.9	21.0	19.7	18.6	19.7
Coll Grad	14.6	18.9	15.8	17.2	18.2	17.1
			HOUSEHOLD INCOME			
LT $10,000	21.5*	26.2*	26.8*	24.7*	18.9	23.7*
10-14,999	23.5*	19.4	21.8	22.3*	22.3*	21.8*
15-19,999	15.6	20.0	21.2	21.7*	20.6	19.9
20-24,999	15.7	17.6	26.5*	18.2	17.6	19.4
25-34,999	19.1	22.1*	21.5	20.3	22.1*	21.2*
35,000	20.2*	18.5	19.1	12.6	22.5*	18.6
			MARITAL STATUS			
Married	21.1*	21.5*	23.5*	21.5*	22.4*	22.1*
Div/Sep	17.1	16.2	16.7	17.6	19.9	17.6
Widowed	19.2	28.8*	33.3*	29.8*	19.0	26.8*
Not Married	10.9	15.2	15.4	13.1	15.2	14.1
			EMPLOYMENT STATUS			
Employed	18.6	18.4	20.1	20.0	21.9*	19.9
Unemployed	15.2	26.2*	29.4*	28.6*	13.5	22.1
Homemkr/Stud.	18.2	19.2	23.8*	14.8	15.9	18.4
Retired	23.0*	26.9*	29.6*	24.8*	22.7*	25.5*

Note: "*" indicates category was higher percent at risk than State percent at risk.

Table 18 Change in Risk Behavior Percentages with Respect to Obesity (More Than 120% of Weight/Height Percent of Median) Comparing 1984 and 1988 for Selected Categories of the Montana Population.

Category	Change in Percent 1984-1988	Top Five Categories of Change
Total Population	+1.7	
	GENDER	
Female	+3.4	
Male	-1.3	
	AGE	
18-24	-0.1	
25-39	+0.7	
40-59	-1.5	
60+	-14.8	1
	RACE	
Nonwhite	+1.8	
White	+1.6	
	EDUCATION	
LT HS/GED	+0.1	
HS/GED	+5.7	2
Coll/Tech	-4.3	4.5
Coll Grad	+3.6	
	HOUSEHOLD INCOME	
LT $10,000	-2.6	
10-14,999	-1.2	
15-19,999	+5.0	3
20-24,999	+1.9	
25-34,999	+3.0	
35,000+	+2.3	
	MARITAL STATUS	
Married	+1.3	
Div/Sep	+2.8	
Widowed	-0.2	
Not Married	+4.3	4.5
	EMPLOYMENT STATUS	
Employed	+3.3	
Unemployed	-1.7	
Homemkr/Student	-2.3	
Retired	-0.3	

Table 19 Percent At Risk for Cholesterol (Never Had Cholesterol Checked): Years 1987 and 1988 (Selected Categories).

(% At Risk) =	1987 (42.3)	1988 (44.8)	Total (43.6)
		GENDER	
Female	44.1*	44.1	44.1*
Male	39.8	45.9*	43.0
		AGE	
18-25	68.9*	80.6*	74.5*
25-39	58.6*	60.2*	59.4*
40-59	33.9	34.5	34.2
60+	22.6	25.6	24.1
		RACE	
Nonwhite	37.9	62.5*	50.8*
White	42.5*	44.3	43.4
		EDUCATION	
LT HS/GED	31.8	43.6	37.5
HS/GED	49.9*	49.4*	49.6*
Coll/Tech	46.6*	44.6	45.6*
Coll Grad	32.0	37.6	34.8
		HOUSEHOLD INCOME	
LT $10,000	43.0*	49.0*	46.0*
10-14,999	43.9*	57.1*	50.3*
15-19,999	53.6*	48.2*	50.9*
20-24,999	44.6*	43.1	43.8*
25-34,999	42.9*	38.2	40.3
35,000+	35.2	36.5	35.9
		MARITAL STATUS	
Married	40.2	43.0	41.6
Div/Sep	52.0*	47.0*	49.3*
Widowed	27.3	26.3	26.8
Not Married	56.1*	69.8*	62.5*
		EMPLOYMENT STATUS	
Employed	46.4*	48.6*	47.5*
Unemployed	60.0*	54.9*	57.1*
Homemkr/Stud.	55.6*	60.7*	58.2*
Retired	22.7	23.1	22.9

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 20 Risk Behavior for Cholesterol for the Years 1987 and 1988. State of Montana. (Percentages)

Risk Status	1987 (N=1098)	1988 (N=1144)	Total (N=2242)
A. Ever Had Cholesterol Checked			
Yes	57.7	55.2	56.4
No	42.3	44.8	43.6

A. Ever Had Cholesterol Checked: Gamma=.05; Chi Square=.234 (Not Significant)

Table 21 Length of Time Since Cholesterol Checked for Those Indicating They Had Cholesterol Checked in the Past, for Years 1987 and 1988. State of Montana. (Percentages)

Length Since Checked	1987 (N=628)	1988 (N=627)	Total (N=1255)
A. How Long Since Cholesterol Checked			
Past Year	65.3	73.2	69.2
Past 2 Years	18.8	15.3	17.1
Past 5 Years	5.3	4.8	5.0
More Then 5 Years	10.7	6.7	8.7
B. Told Cholesterol Level in Numbers			
Yes	56.1	66.9	61.8
No	43.9	33.1	38.2

A. How Long Since Cholesterol Checked: Gamma=-.17; Chi Square=.012
B. Told Cholesterol Level in Numbers: Gamma=-.22; Chi Square=.000

Table 22 Risk Behavior for Montana Women With Regard to Mammograms: Years 1987 and 1988. Adult Women, State of Montana. (Percentages)

Risk Status	1987 (N=706)	1988 (N=674)	Total (N=1380)
	A. Heard of Mammogram		
Yes	89.8	94.7	92.2
No	10.2	5.3	7.8
	B. Ever Had a Mammogram		
Yes	33.1	38.7	35.9
No	66.9	61.3	64.1

A. Heard of Mammogram: Gamma=-33; Chi Square=.000
B. Ever Had a Mammogram: Gamma=-.12; Chi Square=.037

Table 23 Length of Time Since Mammogram for Montana Women Who Have Had a Mammogram: Years 1987 and 1988. (Percentages)

Risk Status	1987 (N=210)	1988 (N=247)	Total (N=457)
	A. How Long Since Mammogram		
Past Year	55.2	58.3	56.9
Past 2 Years	21.0	19.4	20.1
Past 5 Years	9.0	10.5	9.8
More Than 5 Years	14.3	11.7	13.1

A. How Long Since Mammogram: Gamma=-.06; Chi Square=.715 (Not Significant)

Table 24 Percent at Risk for Not Having Routine Medical Checkup Within Past Five Years: Years 1987 and 1988 (Selected Categories).

(% At Risk)=	1987 (18.5)	1988 (19.9)	Total (19.2)
	GENDER		
Female	13.5	13.9	13.7
Male	25.9*	27.7*	26.8*
	AGE		
18-24	15.4	12.9	14.2
25-39	25.2*	26.6*	25.9*
40-59	18.7	19.7	19.2
60+	11.9	14.2	13.1
	RACE		
Nonwhite	19.4*	16.7	17.9
White	18.5	20.0*	19.2
	EDUCATION		
LT HS/GED	11.8	12.7	14.6
HS/GED	19.6*	20.9*	20.3*
Coll/Tech	18.4	18.8	18.6
Coll Grad	21.4*	20.9*	21.1*
	HOUSEHOLD INCOME		
LT $10,000	18.5	14.9	16.8
10-14,999	15.7	23.8*	19.5*
15-19,999	15.0	20.1*	17.5
20-24,999	22.0*	15.8	18.8
25-34,999	25.7*	18.9	22.1*
35,000+	18.9*	26.1*	22.9*
	MARITAL STATUS		
Married	17.9	21.4*	19.7*
Div/Sep	21.3*	23.7*	22.6*
Widowed	15.6	9.0	12.3
Not Married	21.4*	18.6	20.1*
	EMPLOYMENT STATUS		
Employed	22.7*	24.9*	23.8*
Unemployed	7.1	27.3	18.6
Homemkr/Student	17.9	13.4	15.7
Retired	11.5	10.1	10.9

Note: "*" indicates category has higher percent at risk than State percent at risk.

Table 25 Percent at Risk for Not Having Routine Medical Checkup Within Past Five Years: Years 1987 and 1988 (Selected Categories).

(% At Risk)=	1987 (18.5)	1988 (19.9)	Total (19.2)
	GENDER		
Female	13.5	13.9	13.7
Male	25.9*	27.7*	26.8*
	AGE		
18-24	15.4	12.9	14.2
25-39	25.2*	26.6*	25.9*
40-59	18.7	19.7	19.2
60+	11.9	14.2	13.1
	RACE		
Nonwhite	19.4*	16.7	17.9
White	18.5	20.0*	19.2
	EDUCATION		
LT HS/GED	11.8	12.7	14.6
HS/GED	19.6*	20.9*	20.3*
Coll/Tech	18.4	18.8	18.6
Coll Grad	21.4*	20.9*	21.1*
	HOUSEHOLD INCOME		
LT $10,000	18.5	14.9	16.8
10-14,999	15.7	23.8*	19.5*
15-19,999	15.0	20.1*	17.5
20-24,999	22.0*	15.8	18.8
25-34,999	25.7*	18.9	22.1*
35,000+	18.9*	26.1*	22.9*
	MARITAL STATUS		
Married	17.9	21.4*	19.7*
Div/Sep	21.3*	23.7*	22.6*
Widowed	15.6	9.0	12.3
Not Married	21.4*	18.6	20.1*
	EMPLOYMENT STATUS		
Employed	22.7*	24.9*	23.8*
Unemployed	7.1	27.3	18.6
Homemkr/Student	17.9	13.4	15.7
Retired	11.5	10.1	10.9

Note: "*" indicates category has higher percent at risk than State percent at risk.

APPENDIX C: REFERENCES

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